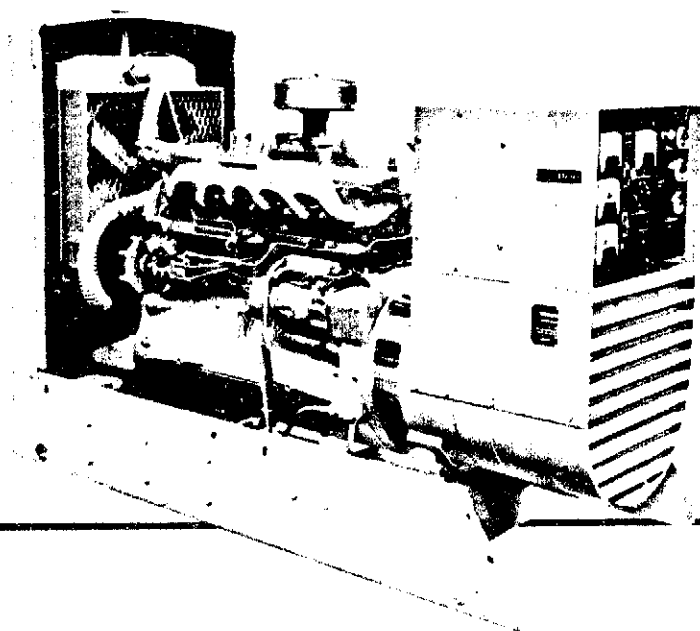


The following catalog
has gaps in its page
numbers, or doesn't
have any numbers.
We have chosen to
leave the page
numbering in the
order that Acrobat
assigns it.



Parts Manual DDB LDDDB GenSet



944-0220
11-82 (SPEC A-E)

Replaces
8-80 (Spec A-E)
Printed in U.S.A.



Redistribution or publication of this document
by any means, is strictly prohibited.

GENERAL INFORMATION

INSTRUCTIONS FOR ORDERING REPAIR PARTS

For parts or service, contact the dealer from whom you purchased this equipment or refer to your Nearest Authorized Onan Parts and Service Center.

To avoid errors or delay in filling your parts order, please furnish all information requested.

Always refer to the nameplate on your unit.

1. Always give the MODEL, SPEC NO. and SERIAL NO.

McGRAW-EDISON

Onan

MODEL AND SPEC NO.

SERIAL NO.

M-1149

For handy reference, insert "YOUR" nameplate information in the spaces above.

2. Do not order by reference number; always use part number and description.
3. Give the part number, description and quantity needed of each item. If an older part cannot be identified, return the part prepaid to your dealer or nearest Onan Parts and Service Center. Print your name and address plainly on the package. Write a letter to the same address stating the reason for returning the part.
4. State definite shipping instructions. Any claim for loss or damage to your unit in transit should be filed promptly against the transportation company making the delivery. Shipments are complete unless the packing list indicates items are back ordered.

Prices are purposely omitted from this Parts Manual due to the confusion resulting from fluctuating costs, import duties, sales taxes, exchange rates, etc.

For current parts prices, consult your Onan Dealer, Distributor or Parts and Service Center.

"En esta lista de partes los precios se omiten de proposito, ya que bastante confusion resulto de fluctuaciones de los precios, derechos aduanales, impuestos de venta, cambios extrajeros, etc."

Consiga los precios vigentes de su distribuidor de productos "ONAN."

INDEX

	LOCATION
GENERAL INFORMATION	A2
SET DATA TABLE	A4
REPLACEMENT ENGINE	A5
EQUIPMENT PARTS SECTION	
Air Cleaner - DDB	A6
Air Cleaner - LDDDB	A7
Alternator	A14
Chassis - DDB	B10
Chassis - LDDDB	B12
Control, Engine	B2
Control, Generator	B4
Cooling System - DDB	A12
Cooling System - LDDDB	A13
Current Transformer Assembly	B8
Engine Parts, Miscellaneous (Left Side)	A8
Engine Coolant Temperature Sender	
High Coolant Temperature Switch - Shutdown	
Low Oil Pressure Switch	
Oil Drain Hardware	
Oil Pressure Sender	
Tachometer Drive and Sender	
Wiring Harness - Engine	
Engine Parts, Miscellaneous (Right Side)	A10
Battery and Starter Cables	
Exhaust Adapter	
Fuel Pressure Sender	
High Coolant Temperature Switch - Alarm	
Low Engine Temperature Switch	
Oil Temperature Sender	
Starter	
Generator Assembly	B6
Housing Control	B1
Rotor, Exciter	B9
OPTIONAL EQUIPMENT SECTION	
Circuit Breaker	C2
Control, Engine (With Five Fault Lights)	C4
Control, Engine (With Mechanical Gauges)	C6
Exhaust System (Housed Sets)	C8
Filter, Fuel	C10
Filter, Voltage Regulator	C11
Governor	C12
Heater, Control	C7
Heater, Engine Coolant (Vertical Tank)	D2
Heater, Engine Coolant (Horizontal Tank)	D4
Heater, Generator	C13
Housing, Set	D6
Output Box Assembly - Housed	C14
Switch, Low Coolant Level	D1
Tachometer	C4
Tank, Fuel - 20 Gals (Housed Set Mounted)	D8
Tank, Fuel Reservoir (Housed Sets)	D10
Tank, Fuel Reservoir (Unhoused Sets)	D12
Tank, Fuel Reservoir (Overhead/Underground Applications)	E2
Tank, Fuel and Sub Base	D14
Vernier Throttle	E1
Wattmeter	E4

This parts catalog applies to the standard generator sets listed below. Any engine parts modified or added by Onan will be listed in this catalog and have been assigned Onan part numbers for identification. These modified or added parts supersede similar parts listed in the Engine Manufacturer's manuals. The illustrations are arranged in groups of related items, and each part or assembly is identified by a reference number. All parts illustrated are typical, and unless otherwise mentioned, parts are interchangeable. These typical illustrations are subject to change and reflect only the latest replacement parts arrangement. The Right and Left generator set sides are determined by facing the front end of the engine.

SET DATA TABLE

MODEL IDENTIFICATION	RATING	MODEL IDENTIFICATION	RATING
40.0 DDB - * / # £	40,000 WATTS	50.0 DDB - * / # £	50,000 WATTS
39.0 L DDB - * / # £	39,000 WATTS	46.0 L DDB - * / # £	46,000 WATTS

ELECTRICAL DATA TABLE

* VOLTAGE CODES	VOLTS	HERTZ	WIRE	PHASE	NOTES
3	120/240	60	3	1	
6D	240/480	60	4	3	
7	220/380	60	4	3	
9X	347/600	60	4	3	
15	120/240,	60	12	1	+
15	120/208,	60	12	3	+
	120/240,				
	127/220,				
	139/240,				
	240/416,				
	254/440,				
	277/480				
515	110/220,	50	12	1	+
	115/230				
515	110/190,	50	12	3	+
	110/220,				
	115/200,				
	115/230,				
	120/208,				
	127/220,				
	220/380,				
	230/400,				
	240/416,				
	254/440,				
15R50	@	60	12	3	@+

* - Voltage codes follow model letters designations.

- Specification number; number 1 is standard, all others indicate variations.

£ - Specification letter; letter advances (A to B, B to C, etc.) with major manufacturing changes.

+ - These generators are reconnectible, refer to Operator's manual for wiring data.

@ - These are Penn State Sets; special parts are identified in the Parts manual when applicable.

NOTICE!

ITEMS REFERENCED AS **OPTIONAL** INDICATE PART IS FACTORY INSTALLED AND MAY NOT BE APPLICABLE TO ALL MODELS. FOR FIELD CONVERSIONS ADDITIONAL PARTS ARE USUALLY REQUIRED.

REPLACEMENT ENGINE

ONAN PART NO.

100-1266
100-1570

***Engine, Replacement**
Standard DDB
Standard LDDB

Includes: Fuel Pump, Fuel Filters, Oil Filter, Governor, Fan Belt, Flywheel, Flywheel Housing, Water Pump, Alternator Mounting and Adjusting Brackets, Pulley and Vibration Damper.

Excludes: Air Cleaner, Starter, Radiator, Fan Blades, Ammeter, Oil Pressure Gauge and Water Temperature Gauge.

***NOTE:** This replacement engine is for Onan's Standard Spec 1 generator sets, for all other refer to the factory for replacement information.

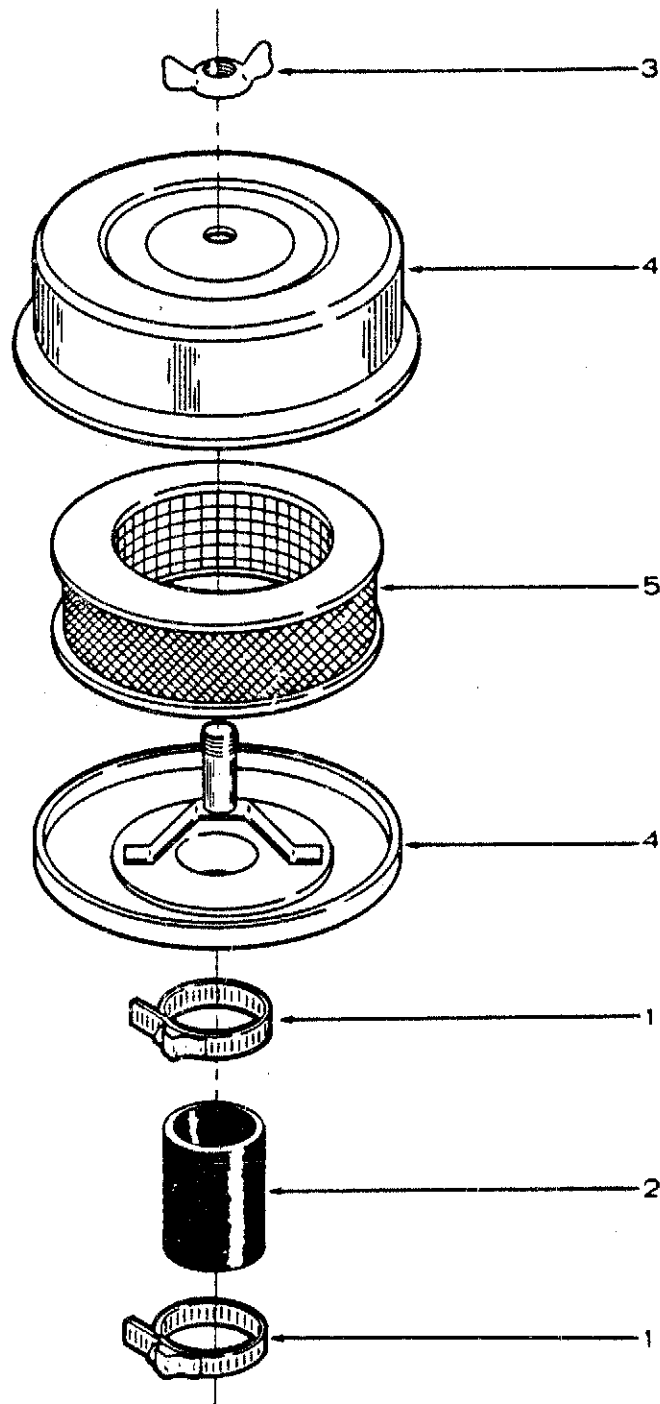
JOHN DEERE	
<input type="text"/>	<input type="text"/>
TYPE	SERIAL

For handy reference, insert "YOUR" nameplate information in the spaces above.

ENGINE REPLACEMENT PARTS

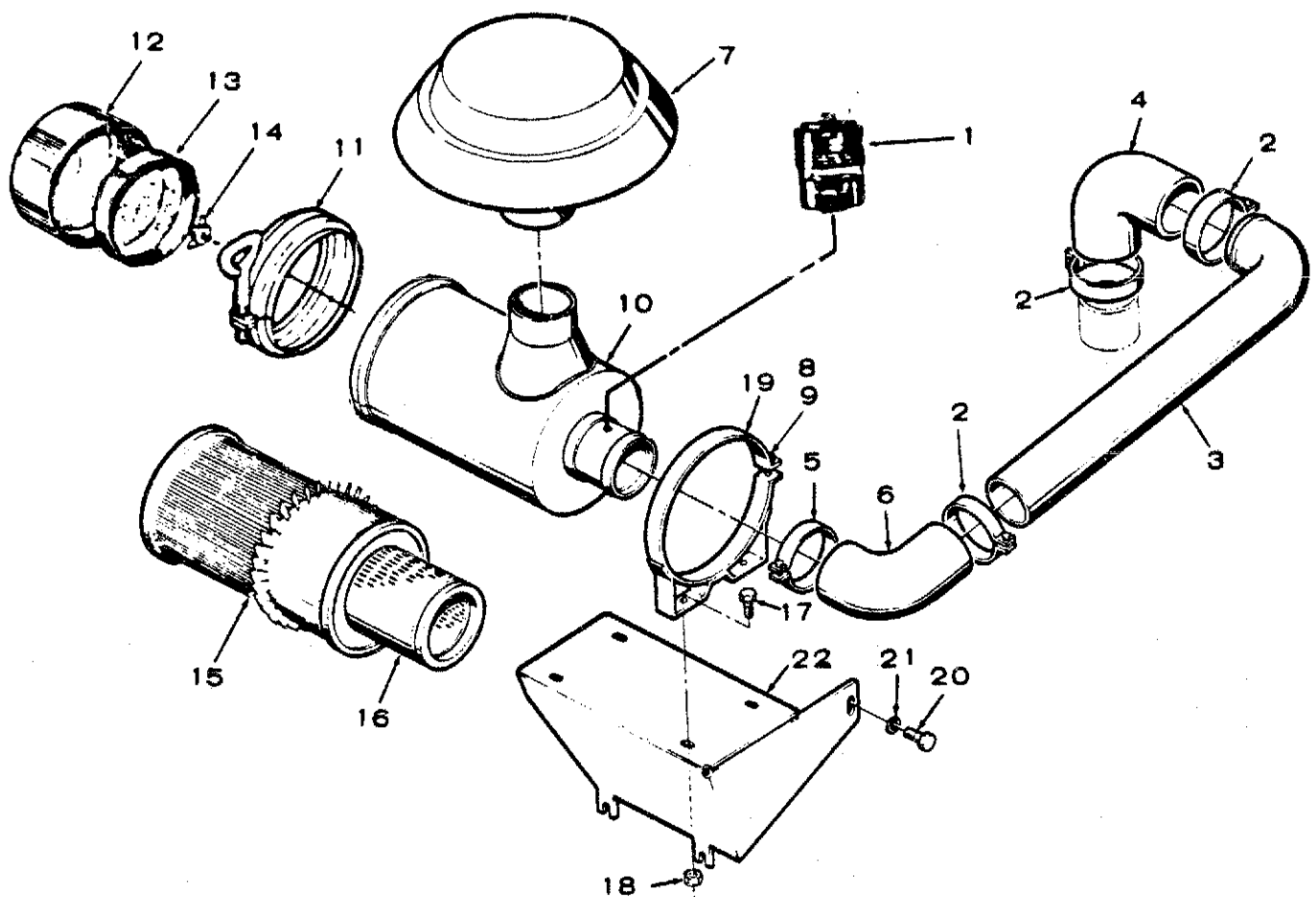
All engine replacement parts must be ordered from the engine manufacturer, except those modified or added by Onan. When ordering engine parts, refer to the manufacturer's nameplate and supply the Model, Spec, Serial numbers and other available information. Refer to the engine manufacturer's manuals for your nearest authorized distributor or parts center; or contact the Onan distributor from whom you purchased this set for assistance in ordering replacement parts.

AIR CLEANER DDB



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	CLAMP, AIR CLEANER HOSE		
	503-0648	2	Spec A Only
	503-0354	2	Begin Spec B
2	HOSE, AIR CLEANER		
	503-0597	1	Spec A Only
	503-0809	1	Begin Spec B
3	865-0020	1	Nut, Wing (1/4-20)
4	140-1838	1	Air Cleaner Assembly (Includes Element)
5	140-1089	1	Element, Air Cleaner

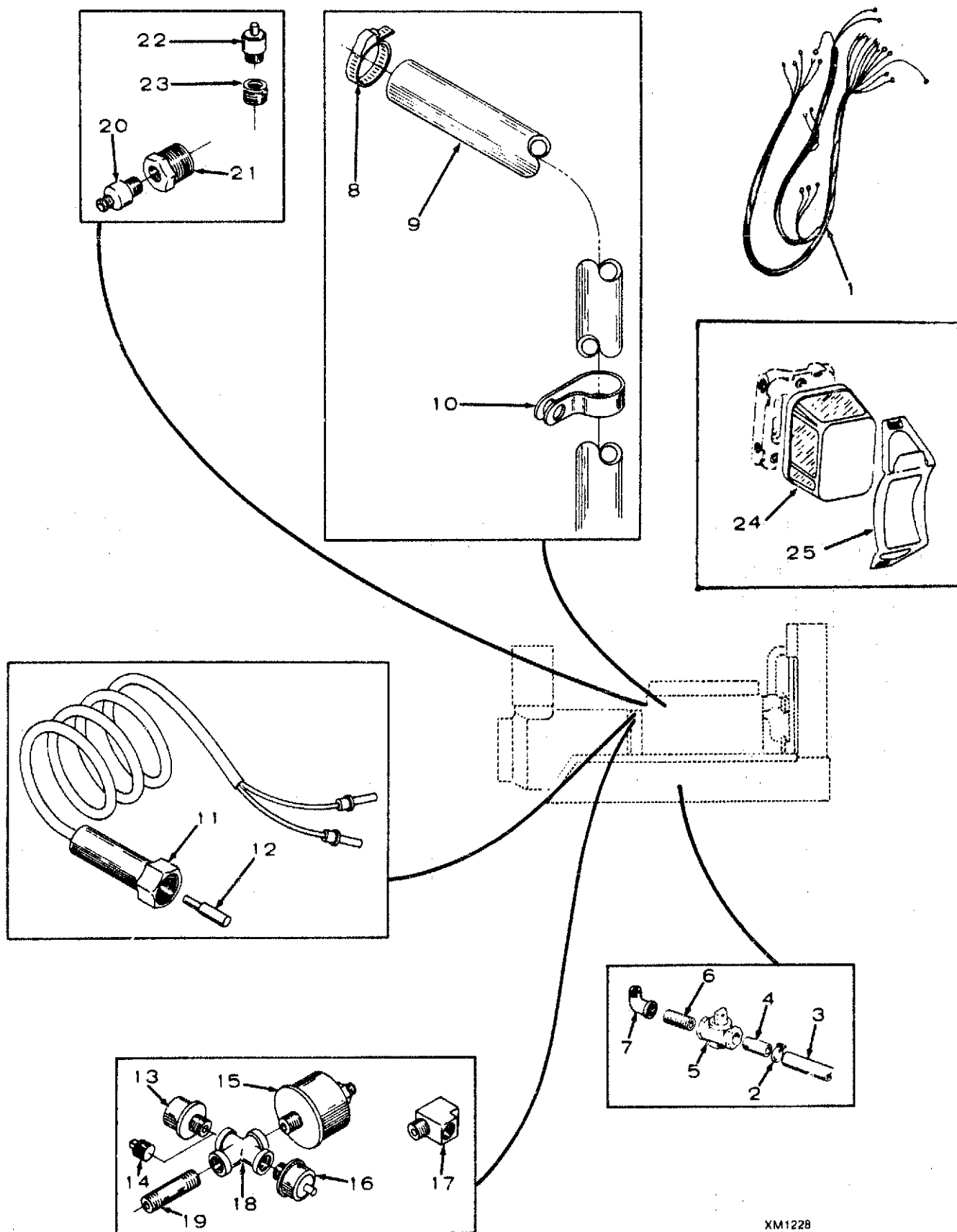
AIR CLEANER LDDB



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	140-1548	1	Indicator, Service
2	503-1185	3	Clamp, Hose (T Bolt Type)
3	140-1574	1	Tube, Air
4	140-1573	1	Elbow, Rubber - Reducing, Preformed
5	503-0885	1	Clamp, Hose (T Bolt Type)
6	140-1571	1	Elbow, Rubber - Reducing, Preformed
7	140-1575	1	Hood, Air Cleaner
8	812-0156	2	Screw, Machine - Round Head (1/4-20 x 1-1/2")
9	863-0002	2	Nut, Square (1/4-20)
10	140-1555	1	Air Cleaner Assembly (Includes Parts Marked *)
11		1	*Clamp, Air Cleaner
12		1	*Cup, Air Cleaner
13		1	*Baffle, Air Cleaner
14		1	*Nut, Wing
15	140-1619	1	*Element, Air Cleaner - Primary
16	140-1620	1	*Element, Air Cleaner - Safety
17	800-0027	4	Screw, Cap - Hex Head (5/16-18 x 7/8")
18	870-0257	4	Nut, Self-locking, Hex (5/16-18)
19	140-0317	2	Band, Mounting - Air Cleaner
20	800-0090	1	Screw, Cap - Hex Head (1/2-13 x 1")
21	850-0060	1	Washer, Lock - Spring (1/2")
22	140-1572	1	Support, Air Cleaner

* - Parts included in Air Cleaner Assembly

MISCELLANEOUS ENGINE PARTS - LEFT SIDE



XM1228

MISCELLANEOUS ENGINE PARTS — LEFT SIDE

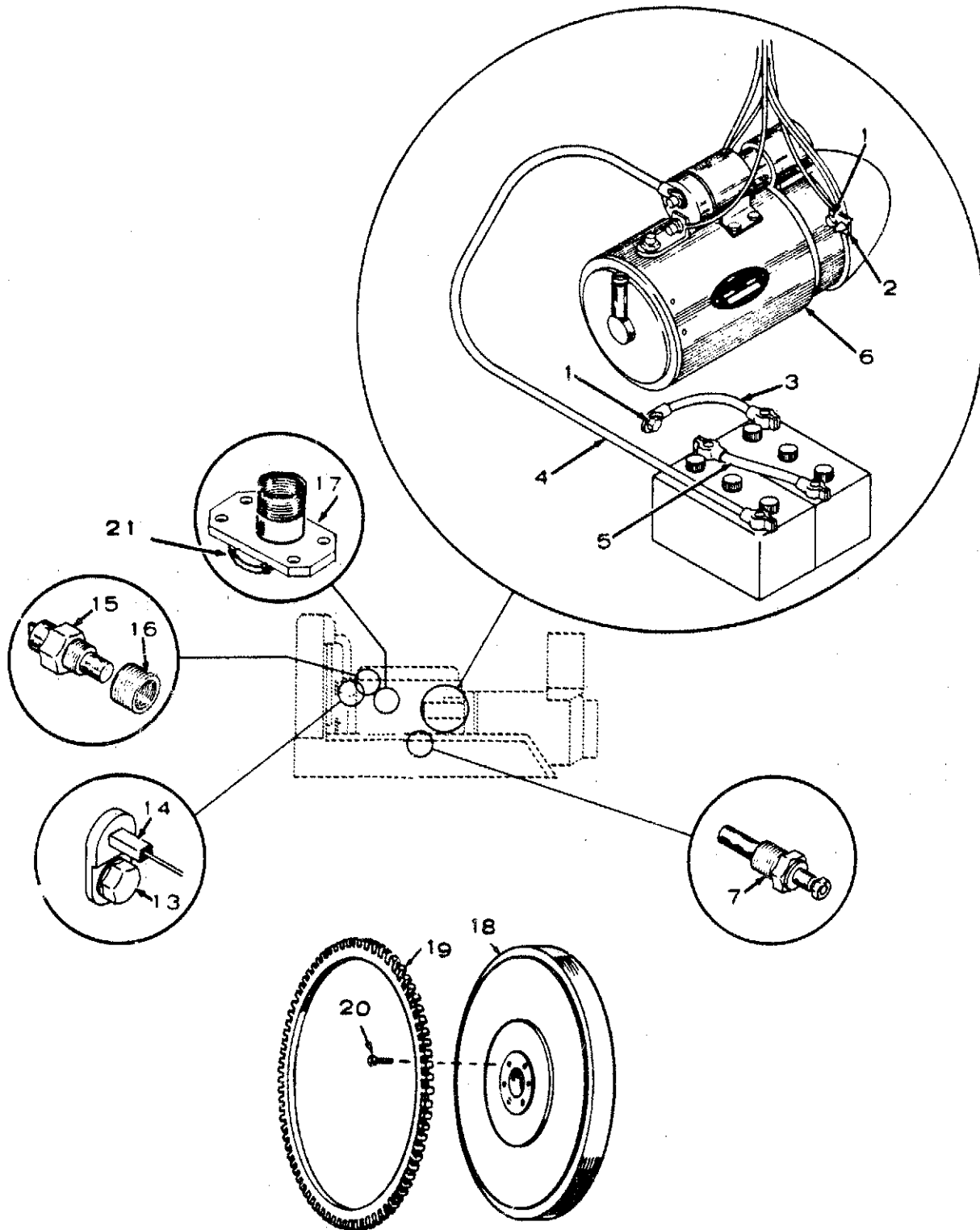
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	WIRING HARNESS - ENGINE		
	338-0772	1	Standard
		1	Special
2	503-0197	1	Clamp, Hose
3	503-0888	1	Hose, Rubber (3/4" ID x 1" OD x 17" Lg)
4	505-0185	1	Nipple, Pipe - Half
5	504-0011	1	Valve, Cock
6	505-0100	1	Nipple, Pipe - Close (1/2" NPT x 1-1/8")
7	505-0050	1	Elbow, Pipe - Street, 90 DEG (1/2" NPT)
8	503-0197	1	Clamp, Hose
9	503-0889	1	Hose, Rubber (3/4" ID x 1" OD x 24" Lg)
10	148-0274	2	Bracket, Support - Hose
11	302-0750	1	† Sender, Tachometer
12	302-0967	1	† Tang, Tachometer
13	309-0064	1	† Switch, Pressure - Oil
14	505-0057	1	Plug, Pipe (1/8" NPT) - (Used When No Oil Switch)
15	† SENDER, OIL PRESSURE		
	193-0108	1	Spec A through B
	193-0244	2	Begin Spec C

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
16	309-0169	1	† Switch, Pressure - Oil
17	502-0058	1	† Tee, Pipe (1/8" NPT) - (Used In Some Installations)
18	505-0763	1	† Cross, Pipe (1/8" NPT)
19	505-0098	1	Nipple, Pipe-Close (1/8" NPT x 3/4")
20	SENDER, WATER TEMPERATURE		
	193-0104	1	Spec A through B
	193-0246	1	Begin Spec C
21	505-0131	1	Bushing, Reducer - Hex (3/4" NPT x 3/8" NPT)
22	309-0179	1	† Switch, Thermostatic - High Coolant Temperature - Shutdown
23	505-0117	1	Bushing, Reducer - Flush, Brass (1/2" NPT x 3/8" NPT)
24	149-1801	1	Clip, Retaining
25	149-1754	1	Element - Fuel Filter

* **NOTE:** For Special Applications Use Standard Wiring Harness and add electrical leads as required for optional sensors, switches per Gen Set wiring diagram.

† - Optional items, used with fault lights or gauges on Engine Control Panel.

MISCELLANEOUS ENGINE PARTS - RIGHT SIDE



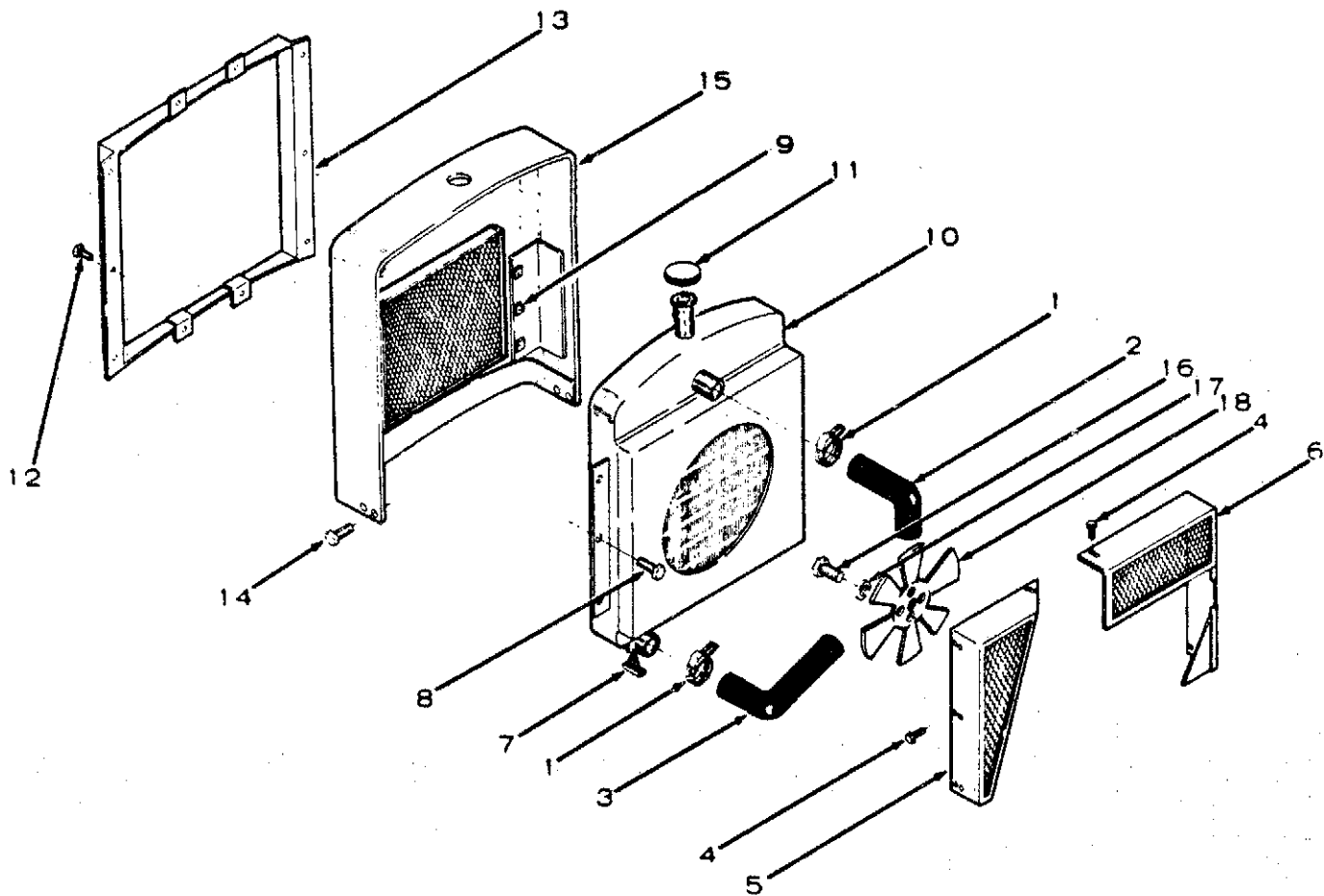
XM1229

MISCELLANEOUS ENGINE PARTS — RIGHT SIDE

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	ATTACHING HARDWARE FOR STARTER & CABLES		
	800-0051	3	Screw, Cap - Hex Head (3/8-16 x 1-1/4")
	850-0050	3	Washer, Lock - Spring (3/8")
	856-0010	1	Washer, Lock - External/Internal Tooth (3/8")
	800-0090	1	Screw, Cap - Hex Head (1/2-13 x 1")
	856-0013	1	Washer, Lock - External/Internal Tooth (1/2")
2	332-1292	1	Terminal Board
3	416-0530	1	Cable, Battery - Negative (16" Lg)
4	416-0531	1	Cable, Battery - Positive (24" Lg)
5	416-0446	1	Cable, Battery - Jumper
6	191-1119	1	Starter, Electrical - 12 Volt
7	193-0249	1	†Sender, Temperature - Oil
13	821-0029	1	Screw, Self-locking - Hex Washer Head (3/8-16 x 3/4")
14	309-0269	1	†Switch, Thermostatic - Low Engine Temperature
15	309-0178	1	†Switch, Thermostatic - High Coolant Temperature - Alarm
16	505-0117	1	†Bushing, Reducer - Flush, Brass (1/2" NPT x 3/8" NPT)
17	155-1330	1	Flange, Exhaust Outlet
18	104-0871	1	Flywheel (Includes Ring Gear) - Spec A Only
19	104-0859	1	Gear, Ring (Spec A Only)
20	800-0094	4	Screw, Cap - Hex Head (1/2-13 x 2" Lg) - Spec A Only
21	155-1977	1	Gasket

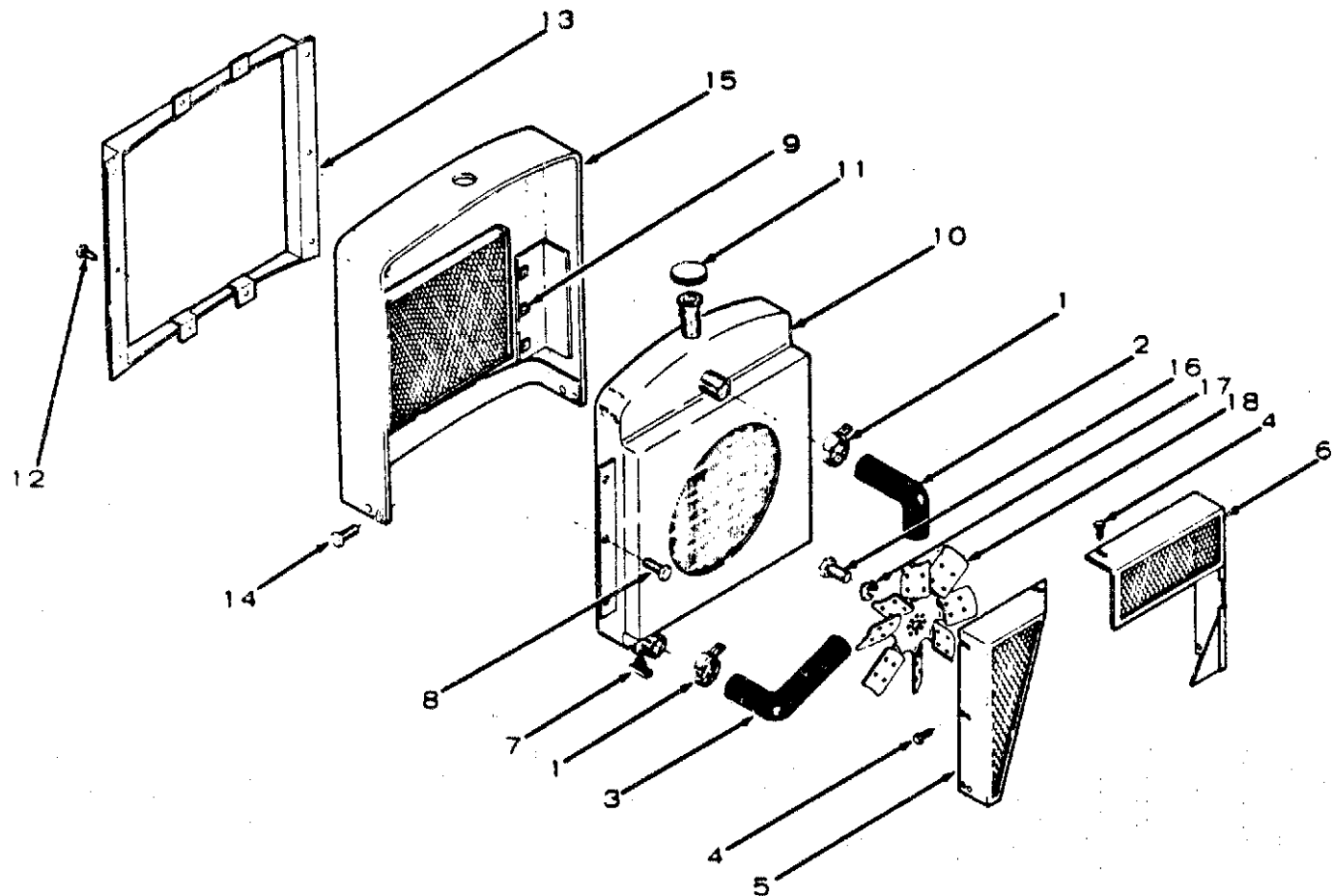
† - Optional Items, used with fault lights or gauges on Engine Control Panel.

COOLING SYSTEM (WITH RADIATOR) DDB



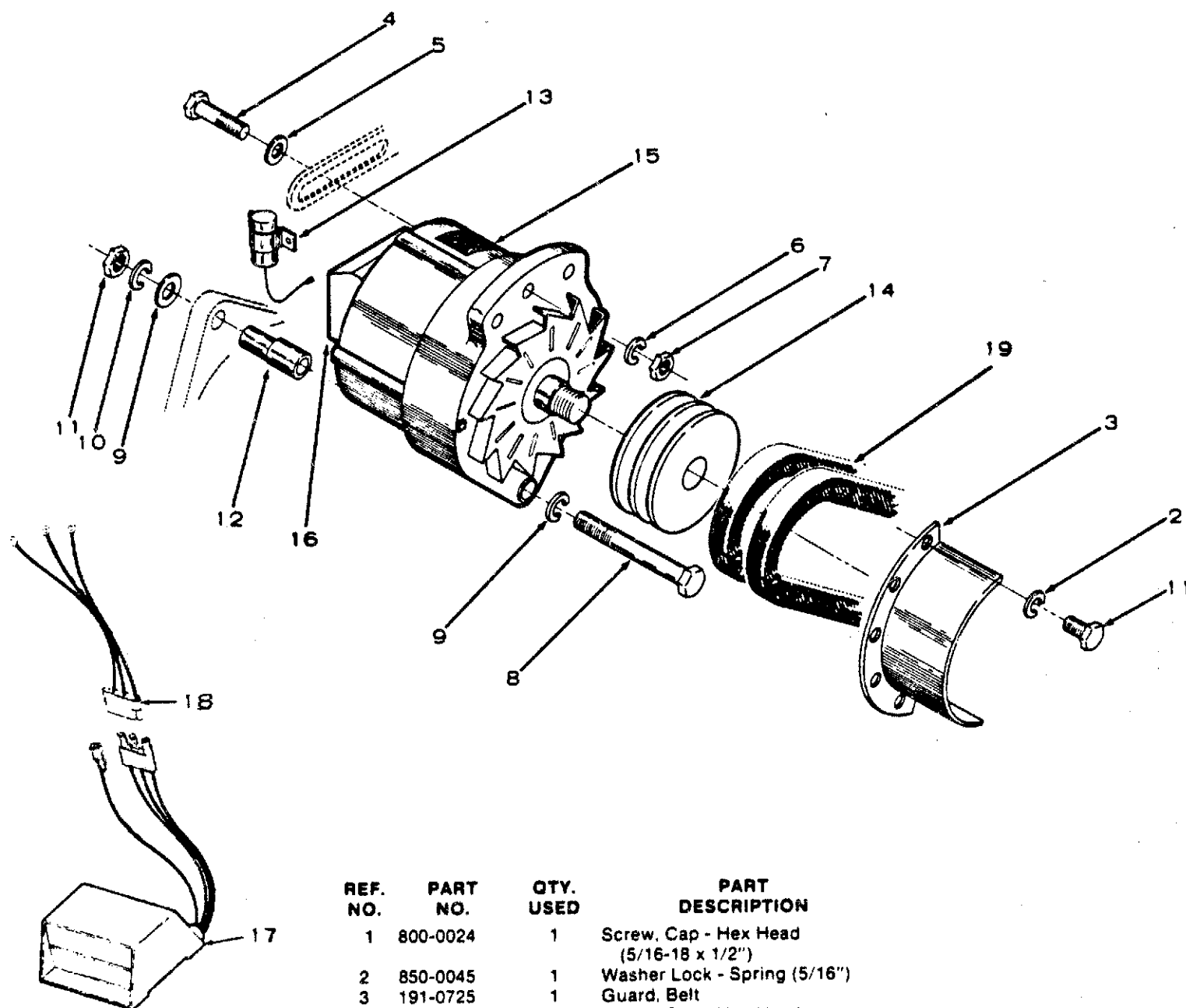
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	503-0365	4	Clamp Hose
2	503-0727	1	Hose, Radiator - Upper
3	503-0635	1	Hose, Radiator - Lower
4	815-0181	8	Screw, Tapping - Hex Head (#10-32 x 1/2")
5	130-0934	1	Guard, Fan - Right Side
6	130-0935	1	Guard, Fan - Left Side
7	504-0028	1	Cock, Drain
8	821-0014	6	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
9	870-0113	6	Nut, Hex with Retaining Clip (5/16-18)
10	130-0713	1	Radiator (Includes Cap)
11	130-0449	1	Cap, Pressure
12	815-0181	10	Screw, Tapping - Hex Head (#10-32 x 1/2")
13	405-1054	1	Flange, Air Duct
14	821-0014	8	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
15	405-1811	1	Panel, Front
16	800-0050	4	Screw, Cap - Hex Head (3/8-16 x 1" Lg)
17	850-0050	4	Washer, Lock - Spring (3/8")
18	130-0938	1	Fan, Cooling - Engine

COOLING SYSTEM (WITH RADIATOR) LDD8



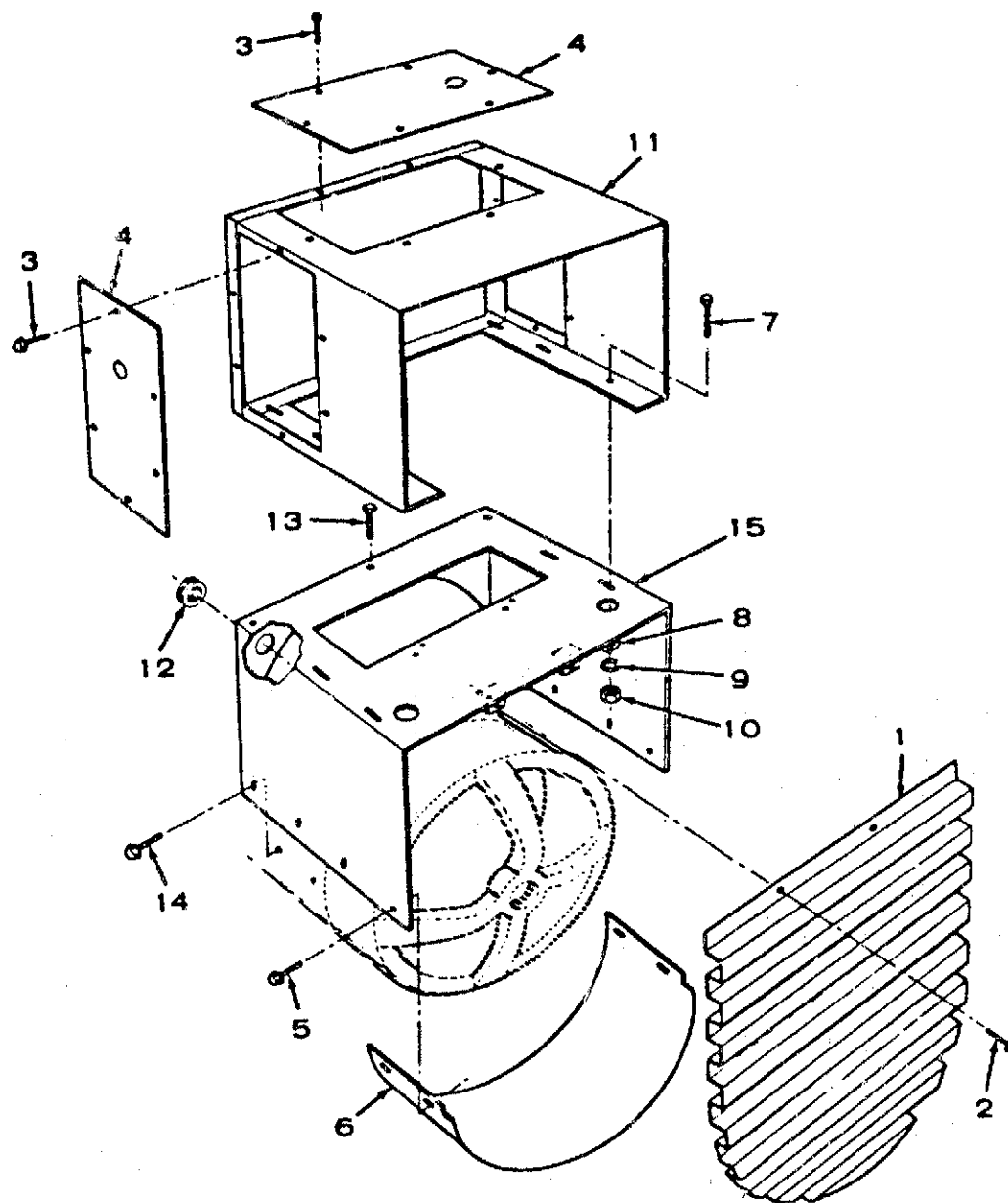
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	503-0365	4	Clamp Hose
2	503-0727	1	Hose, Radiator - Upper
3	503-0635	1	Hose, Radiator - Lower
4	815-0181	8	Screw, Tapping - Hex Head (#10-32 x 1/2")
5	130-0934	1	Guard, Fan - Right Side
6	130-0935	1	Guard, Fan - Left Side
7	504-0028	1	Cock, Drain
8	821-0014	6	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
9	870-0113	6	Nut, Hex with Retaining Clip (5/16-18)
10	130-1255	1	Radiator (Includes Cap)
11	130-0449	1	Cap, Pressure
12	815-0181	10	Screw, Tapping - Hex Head (#10-32 x 1/2")
13	405-1054	1	Flange, Air Duct
14	821-0014	8	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
15	405-1811	1	Panel, Front
16	800-0050	4	Screw, Cap - Hex Head (3/8-16 x 1" Lg)
17	850-0050	4	Washer, Lock - Spring (3/8")
18	130-2234	1	Fan, Cooling - Engine

ALTERNATOR



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	800-0024	1	Screw, Cap - Hex Head (5/16-18 x 1/2")
2	850-0045	1	Washer Lock - Spring (5/16")
3	191-0725	1	Guard, Belt
4	800-0030	1	Screw, Cap - Hex Head (5/16-18 x 1-1/4")
5	526-0115	2	Washer, Flat (11/32" ID x 11/16" OD x 1/16" Thk)
6	850-0045	1	Washer, Lock - Spring (5/16")
7	862-0015	1	Nut, Hex (5/16-18)
8	800-0058	1	Screw, Cap - Hex Head (3/8-16 x 3")
9	526-0035	2	Washer, Flat (17/32" ID x 7/8" OD x 1/8" Thk)
10	850-0050	1	Washer, Lock - Spring (3/8")
11	862-0003	1	Nut, Hex (3/8-16)
12	232-2183	1	Spacer, Stepped
13	312-0201	1	Capacitor
14	191-1098	1	Pulley
15	ALTERNATOR - 12 VDC		
	191-1388	1	Standard (Includes Regulator)
	191-1257	1	Marine Type - Optional
16	191-1390	1	Regulator, Voltage (Part of 191-1388 Alternator)
17	191-0548	1	Regulator, Voltage (Used with 191-1257 Alternator)
18	191-0681	1	Cable, Electrical (Alternator to Regulator)
19	511-0136	2	Belt, Drive

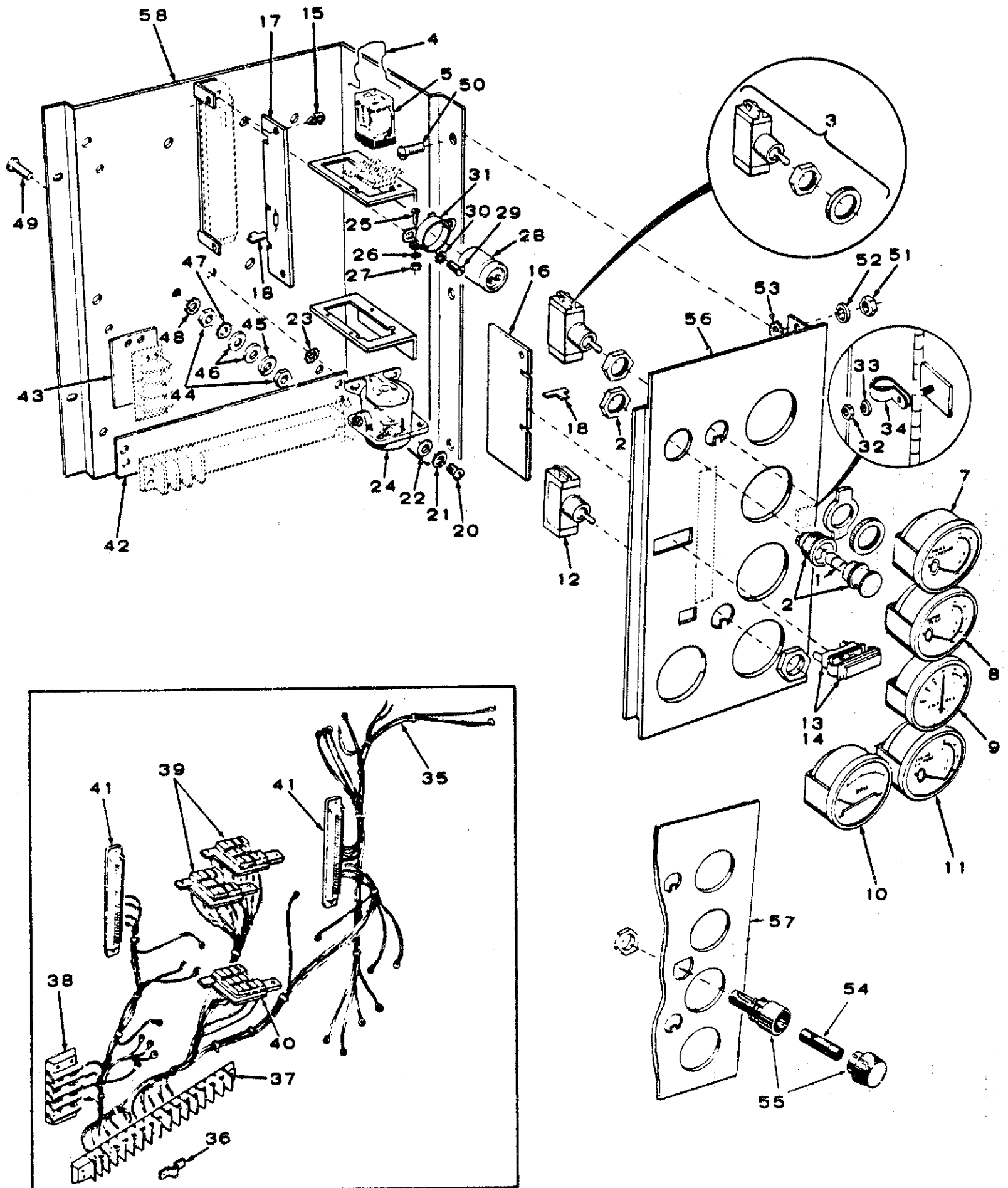
CONTROL HOUSING



M-1180

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	821-0010	8	Screw, Self-locking - Hex Washer Head (1/4-20 x 1/2")	8	856-0006	1	Washer, Lock - EIT (1/4")
2	234-0370	1	Grill, Air - Generator Inlet	9	526-0018	5	Washer, Flat (17/64" ID x 5/8" OD x 1/16" Thk)
3	815-0350	18	Screw, Tapping - Hex Washer Head (#10-32 x 3/8")	10	870-0212	6	Nut, Hex (1/4-20)
4	301-3156	3	Panel, Access	11	301-3155	1	Housing, Control Box
5	821-0010	4	Screw, Self-locking - Hex Washer Head (1/4-20 x 1/2")	12	508-0203	1	Bushing, Cable - Nylon
6	234-0361	1	Wrapper, End Bell	13	821-0010	1	Screw, Self-locking - Hex Washer Head (1/4-20 x 1/2")
7	821-0018	6	Screw, Self-locking - Hex Washer Head (1/4-20 x 5/8")	14	821-0014	8	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
				15	301-3154	1	Saddle, Control Box

ENGINE CONTROL WITH ONE FAULT LIGHT



ENGINE CONTROL WITH ONE FAULT LIGHT

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	322-0004	1	Lamp Incandescent (12 VDC)
2	322-0149	1	Lampholder
3	308-0002	1	Switch, Toggle (SPST)
4	307-1157	3	Spring, Holddown - Relay
5	RELAY (12 VDC)		
	307-1058	1	(Ignition)
	307-1058	1	(Start Disconnect)
	307-1061	1	(Starter Protection)
7	193-0243	1	Gauge - Oil Pressure (12 VDC)
8	193-0245	1	Gauge - Water Temperature (12 VDC)
9	302-0061	1	Ammeter
10	302-0749	1	† Tachometer - Electrical
11	193-0248	1	† Gauge - Oil Temperature (12 VDC)
12	SWITCH, TOGGLE - SELECTOR		
	308-0138	1	Standard & Cycle Cranking Controls
	308-0327	1	Penn State Controls
13	*LIGHT, INDICATOR (Lens Color & Legend Listed Below)		
	322-0128	1	Red - Fault - 14 VDC
14	322-0136	1	*Light, Indicator - 14 VDC (Red Lens - No Legend)
15	518-0374	4	Fastener, Snap-In (Printed Circuit Boards)
16	PRINTED CIRCUIT BOARD ASSEMBLY		
	300-0733	1	Standard Cranker (12 VDC)
	300-0714	1	Cycle Cranker (12 VDC)
17	PRINTED CIRCUIT BOARD ASSEMBLY		
	300-0679	1	Engine Control Monitor - Standard
	300-0730	1	Engine Control Monitor - Penn State
18	332-1276	4	Plug, Keying - PC Board
20	813-0098	2	Screw, Machine - Round Head (#10-32 x 3/8")
21	850-0030	2	Washer, Lock - Spring (#10)
22	526-0009	2	Washer, Flat (7/32" ID x 1/2" OD x 1/16" Thk)
23	856-0003	2	Washer, Lock - EIT (#10)
24	307-1031	1	Relay, Solenoid - Start (12 VDC)
25	812-0061	1	Screw, Machine - Round Head (#6-32 x 3/8")
26	860-0006	1	Nut, Hex (#6-32)
27	853-0003	1	Washer, Lock - ET (#6)
28	356-0072	1	Capacitor, Fixed Electrolytic (4000 MFD, 30 VDC)
29	812-0063	2	Screw, Machine - Round Head (#6-32 x 1/2")
30	853-0003	2	Washer, Lock - ET (#6)
31	356-0070	1	Clamp, Capacitor Mounting
32	870-0053	1	Nut, Hex (#10-32)
33	850-0030	1	Washer, Lock - Spring (#10)
34	332-0051	1	Clamp, Loop

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
35	HARNESS, WIRING - ENGINE CONTROL		
	338-1065	1	Includes Parts Marked +
	338-1122	1	£ Includes Parts Marked +
	ATTACHING HARDWARE FOR WIRING HARNESS		
	812-0061	4	Screw, Machine - Round Head (#6-32 x 3/8")
	812-0066	6	Screw, Machine - Round Head (#6-32 x 3/4")
	853-0003	14	Washer, Lock - ET (#6)
	860-0006	10	Nut, Hex (#6-32)
36	332-1043	1	+ Jumper, Terminal
37	332-0795	1	+ Block, Terminal - 16 Place
38	332-0537	1	+ Block, Terminal - 4 Place
39	323-0765	2	+ Socket, Relay - 11 Place
40	323-0764	1	+ Socket, Relay - 8 Place
41	332-1271	2	+ Connector, Electrical - PC BD
42	332-1241	1	Strip, Marker - Terminal
43	332-1239	1	Strip, Marker - Terminal
	GROUND TERMINAL ASSEMBLY (Includes parts marked #)		
44	871-0010	2	#Nut, Hex - Brass (#10-32)
45	850-0030	1	#Washer, Lock - Spring (#10)
46	526-0062	2	#Washer, Flat - Brass (13/64" ID x 1/2" OD x 1/16" Thk)
47	853-0008	1	#Washer, Lock - ET (#10)
48	856-0003	1	#Washer, Lock - EIT (#10)
49	815-0203	1	#Screw, Machine - Round Head, Brass (#10-32 x 7/8")
50	815-0026	5	Screw, Machine - Truss Head (#10-32 x 3/8")
51	870-0053	1	Nut, Hex (#10-32)
52	850-0030	1	Washer, Lock - Spring (#10)
53	856-0003	1	Washer, Lock - EIT (#10)
54	321-0181	1	£ Fuse (5 Amp)
55	321-0217	1	£ Fuseholder
56	PANEL, CONTROL - ENGINE		
	301-3165	1	With Three Gauge Mtg. Holes
	301-3286	1	With Four Gauge Mtg. Holes
	301-3396	1	With Five Gauge Mtg. Holes
57	£ PANEL, CONTROL - ENGINE		
	301-4572	1	With Three Gauge Mtg. Holes
		1	With Four Gauge Mtg. Holes
		1	With Five Gauge Mtg. Holes
58	301-3253	1	Bracket, Mounting - Engine Control

* - NOTE: For lamp replacement order 322-0136
Remove and discard plain red lens, install lens with legend from burned out light - lights snap in and out of panel.

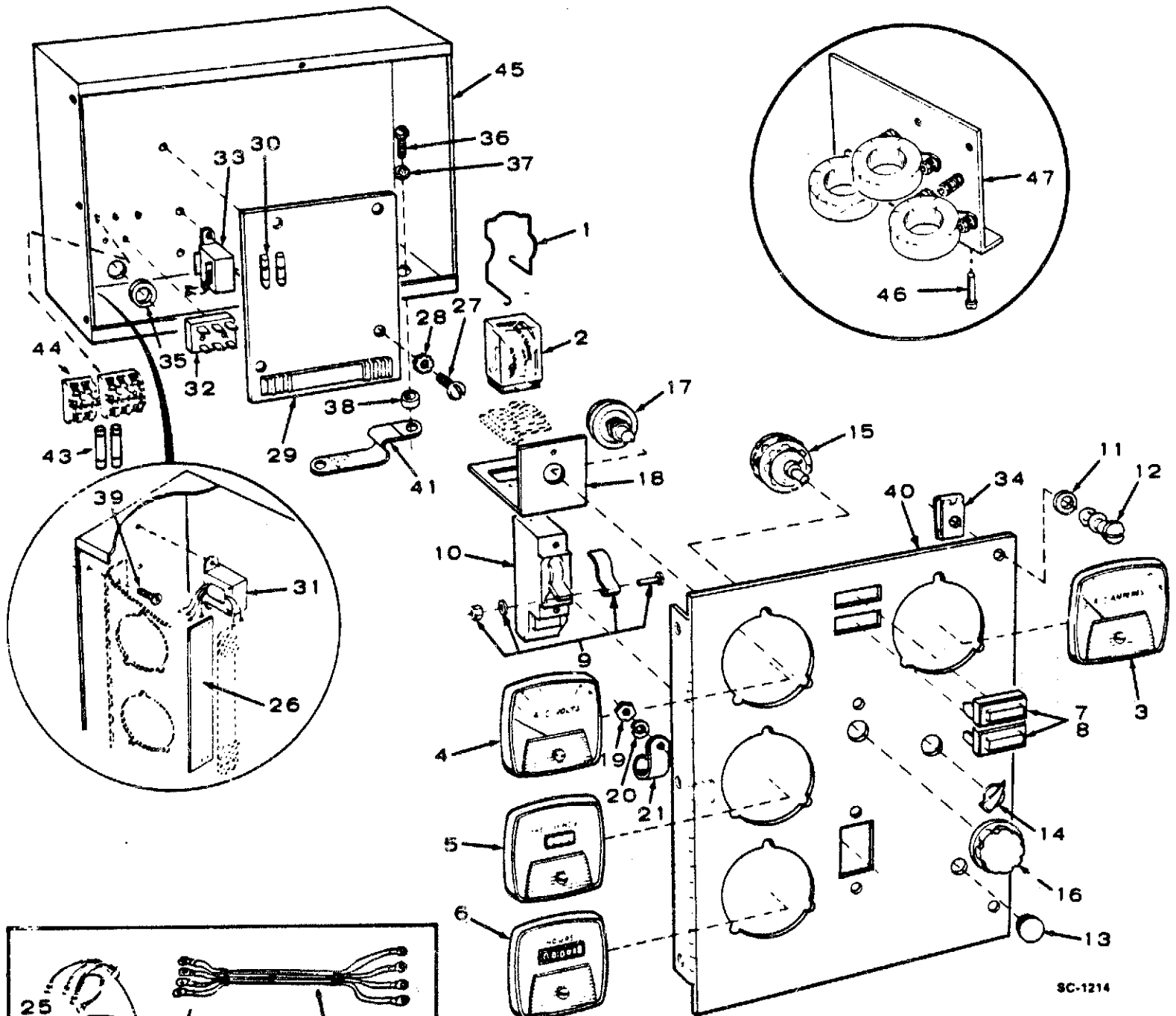
† - Optional items used with Engine Mounted Senders.

+ - Parts Included in Wiring Harness

- Parts Included in Ground Terminal Assembly

£ - Parts Used on Hi Ambient Temp (L) Type GenSets.

GENERATOR CONTROL



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	307-1157	1	Spring, Holddown, Relay - Code 15, 515
2	307-1061	1	Relay Code 15, 515
3	AMMETER (Select as Required)		
			SINGLE SCALE
	302-0406	1	0-50 Amp
	302-0408	1	0-75 Amp
	302-0410	1	0-100 Amp
	302-0411	1	0-200 Amp
	302-0412	1	0-250 Amp
	302-0413	1	0-300 Amp
	302-0605	1	0-400 Amp
			DUAL SCALE
	302-0719	1	0-75, 0-150 Amp
	302-0720	1	0-100, 0-200 Amp
	302-0721	1	0-150, 0-300 Amp
	302-0722	1	0-200, 0-400 Amp
	302-0723	1	0-250, 0-500 Amp
	302-0724	1	0-375, 0-750 Amp

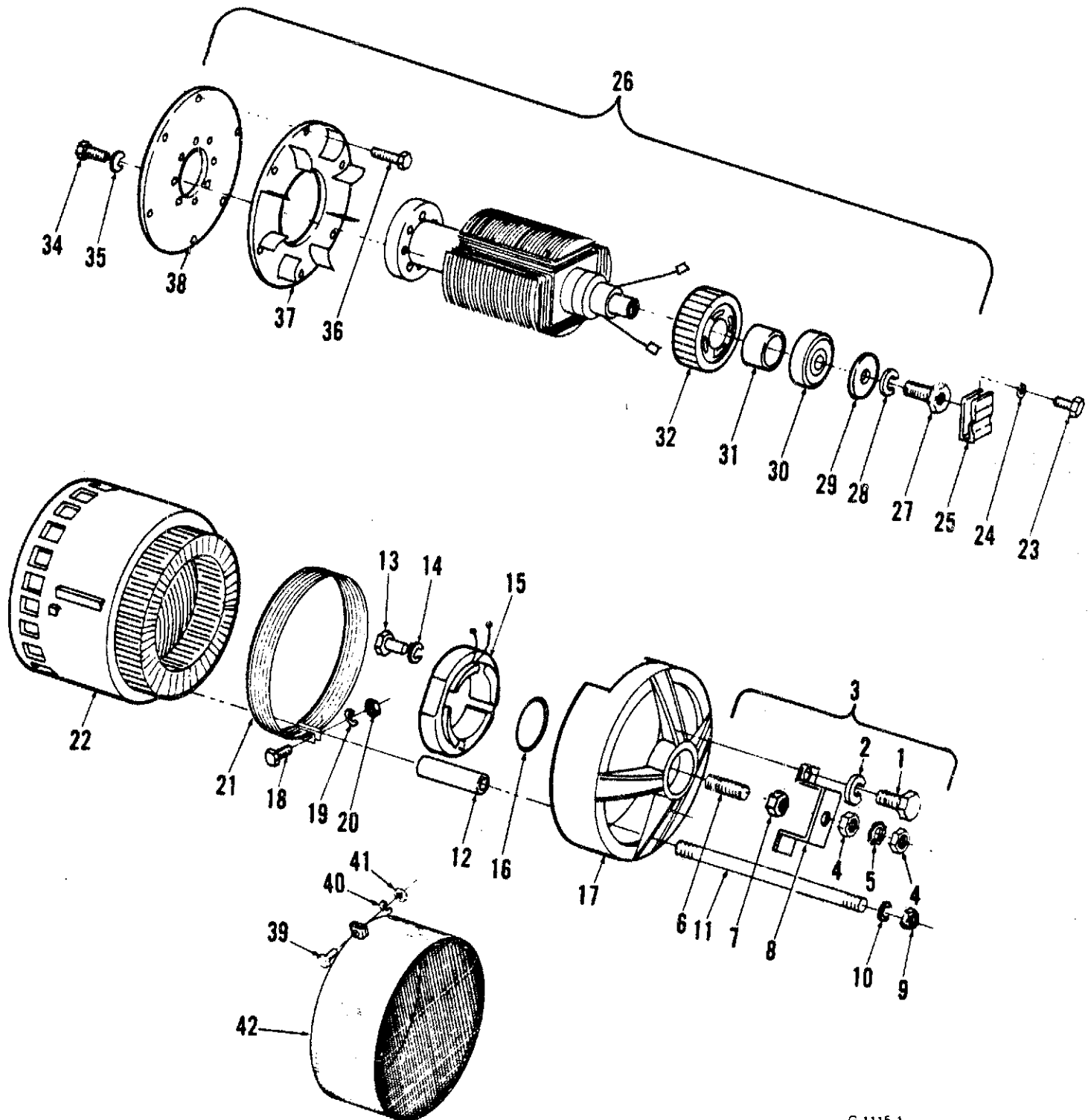
GENERATOR CONTROL

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
4	VOLTMETER (Select as Required)		
			SINGLE SCALE
	302-0421	1	0-300 Volt
	302-0422	1	0-600 Volt
	302-0612	1	0-500 Volt
	302-0779	1	0-750 Volt
			DUAL SCALE
	302-0718	1	0-300, 0-600 Volt
5	METER, FREQUENCY (Select as Required)		
			REED TYPE
	302-0213	1	115 VAC, 60 Hz
	302-0221	1	230 VAC, 60 Hz
	302-0234	1	115 VAC, 50 HZ
	302-0256	1	230 VAC, 50 Hz
			POINTER TYPE
	302-0809	1	120 VAC, 60 Hz
	302-0810	1	208 VAC, 60 Hz
	302-0811	1	240 VAC, 60 Hz
6	METER, TIME TOTALIZING (Select as Required)		
	302-0466	1	60 Hz
	302-0469	1	50 Hz
7	LIGHT, INDICATOR - 125 VAC (Lens Color & Legend Listed Below)		
	322-0130	1	Red - Lower Scale
	322-0131	1	Red - Upper Scale
8	322-0178	1	Light, Indicator - 125 VAC (Replacement) - Discard Lens - Used Lens from Original Light
9	320-0307	1	Lock - Circuit Breaker Handle (Penn State Sets)
	ATTACHING HARDWARE FOR LOCK		
	815-0203	1	Screw, Machine - Round Head (#10-32 x 7/8")
	854-0010	1	Washer, Lock - IT (#10)
	871-0010	1	Nut, Hex (#10-32)
10	320-0431	1	Circuit Breaker
	ATTACHING HARDWARE FOR CIRCUIT BREAKER		
	812-0061	2	Screw, Machine - Round Head (#6-32 x 3/8")
	850-0020	2	Washer, Lock - Spring (#6)
	815-0203	1	Screw, Machine - Round Head, Brass (#10-32 x 7/8")
	871-0010	1	Nut, Hex - Brass (#10-32)
	853-0008	1	Washer, Lock - ET (#10)
	526-0049	1	Washer, Flat - Brass (13/64" ID x 7/16" OD x 132" Thk)
11	406-0334	2	Clip, Retaining - Turnbutton Fastener
12	406-0333	2	Stud, Turnbutton Fastener
13	517-0131	1	Plug, Plastic
14	303-0076	1	Knob, Pointer
15	308-0284	1	Switch, Selector
16	303-0032	1	Knob
17	303-0170	1	Rheostat (35K Ohms, 25 Watt)
18	301-3244	1	Bracket, Mounting, Relay - Code 15, 515
19	870-0053	1	Nut, Hex (#10-32)
20	850-0030	1	Washer, Lock - Spring (#10)
21	332-0051	1	Clamp, Loop
22	HARNESS, WIRING - GENERATOR CONTROL		
			Sets Without Meter Panel
	338-0765	1	Code 3
	338-0764	1	Code 15, 515
	338-0766	1	Code 6D, 7, 9X
			Sets With Meter Panel
	338-0735	1	Code 3
	338-0730	1	Code 15, 515
	338-0759	1	Code 6D, 7, 9X
	ATTACHING HARDWARE FOR WIRING HARNESS		
	812-0061	2	Screw, Machine - Round Head (#6-32 x 3/8")
	812-0066	2	Screw, Machine - Round Head (#6-32 x 3/4")
	850-0020	2	Washer, Lock - Spring (#6)
	853-0003	4	Washer, Lock - ET (#6)
	853-0006	2	Nut, Hex (#6-32)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
23	BLOCK, TERMINAL (Select as Required)		
	332-0607	1	12 Place
	332-0795	1	16 Place
24	350-0556	1	Resistor, Fixed, Composition (47K Ohms, 1/2 Watt) - Code 15, 515
25	323-0765	1	Socket, Relay - 11 Place - Code 15, 515
26	STRIP, MARKER (Select as Required)		
	332-1242	1	16 Place
	332-1248	1	12 Place
27	812-0065	4	Screw, Machine - Round Head (#6-32 x 5/8")
28	853-0003	4	Washer, Lock - ET (#6)
29	332-1956	1	Regulator, Voltage
30	321-0204	2	Fuse, Cartridge (1/4 Amp)
31	315-0431	1	Transformer, Voltage
	ATTACHING PARTS FOR TRANSFORMER		
	812-0061	2	Screw, Machine - Round Head (#6-32 x 3/8")
	853-0003	2	Washer, Lock - ET (#6)
32	305-0675	1	Rectifier, Bridge
	ATTACHING PARTS FOR RECTIFIER		
	812-0070	2	Screw, Machine - Round Head (#6-32 x 1-1/4")
	850-0020	2	Washer, Lock - Spring (#6)
33	315-0384	1	Reactor
	ATTACHING PARTS FOR REACTOR		
	812-0061	2	Screw, Machine - Round Head (#6-32 x 3/8")
	853-0003	2	Washer, Lock - ET (#6)
34	406-0332	2	Receptacle, Turnbutton Fastener
35	508-0001	4	Grommet, Rubber
36	800-0045	4	Screw, Cap - Hex Head (5/16-18 x 3/8")
37	850-0045	4	Washer, Lock - Spring (5/16")
38	402-0070	4	Dampener, Vibration
39	815-0026	3	Screw, Machine - Truss Head (#10-32 x 3/8")
40	PANEL CONTROL		
			Sets Without Meter Panel
	301-3822	1	Code 3
	301-3821	1	Code 6D, 7, 9X
	301-3274	1	Code 15, 515
			Sets With Meter Panel
	301-3169	1	Code 3
	301-3342	1	Code 6D, 7, 9X
	301-3170	1	Code 15, 515
41	337-0049	1	Strap, Ground
	ATTACHING PARTS FOR STRAP		
	800-0045	1	Screw, Cap - Hex Head (5/16-18 x 3/8")
	850-0045	1	Washer, Lock - Spring (5/16")
	856-0008	2	Washer, Lock - EIT (5/16")
	862-0015	1	Nut, Hex (5/16-18)
42	338-1104	1	£Wiring Harness - Fuse Blocks to Terminal Board
43	321-0223	4	£Fuse, Cartridge (15 Amp)
44	£FUSE BLOCK		
	321-0176	1	Two Place
	321-0177	1	Three Place
45	BOX, CONTROL		
	301-3158	1	Used on Sets Without Fuse Blocks
	301-4586	1	£Used on Sets With Fuse Blocks
46	821-0010	2	Screw, Self-locking - Hex Washer Head (1/4-20 x 1/2")
47	CURRENT TRANSFORMER ASSEMBLY (See Separate Figure For Parts) - NOTE: Assembly is Located Behind the Control Box.		

£ - Parts Used on Hi Ambient Temp (L) Type GenSets.

GENERATOR ASSEMBLY - BRUSHLESS TYPE USED WITH REMOTE VOLTAGE REGULATOR



G 1115-1

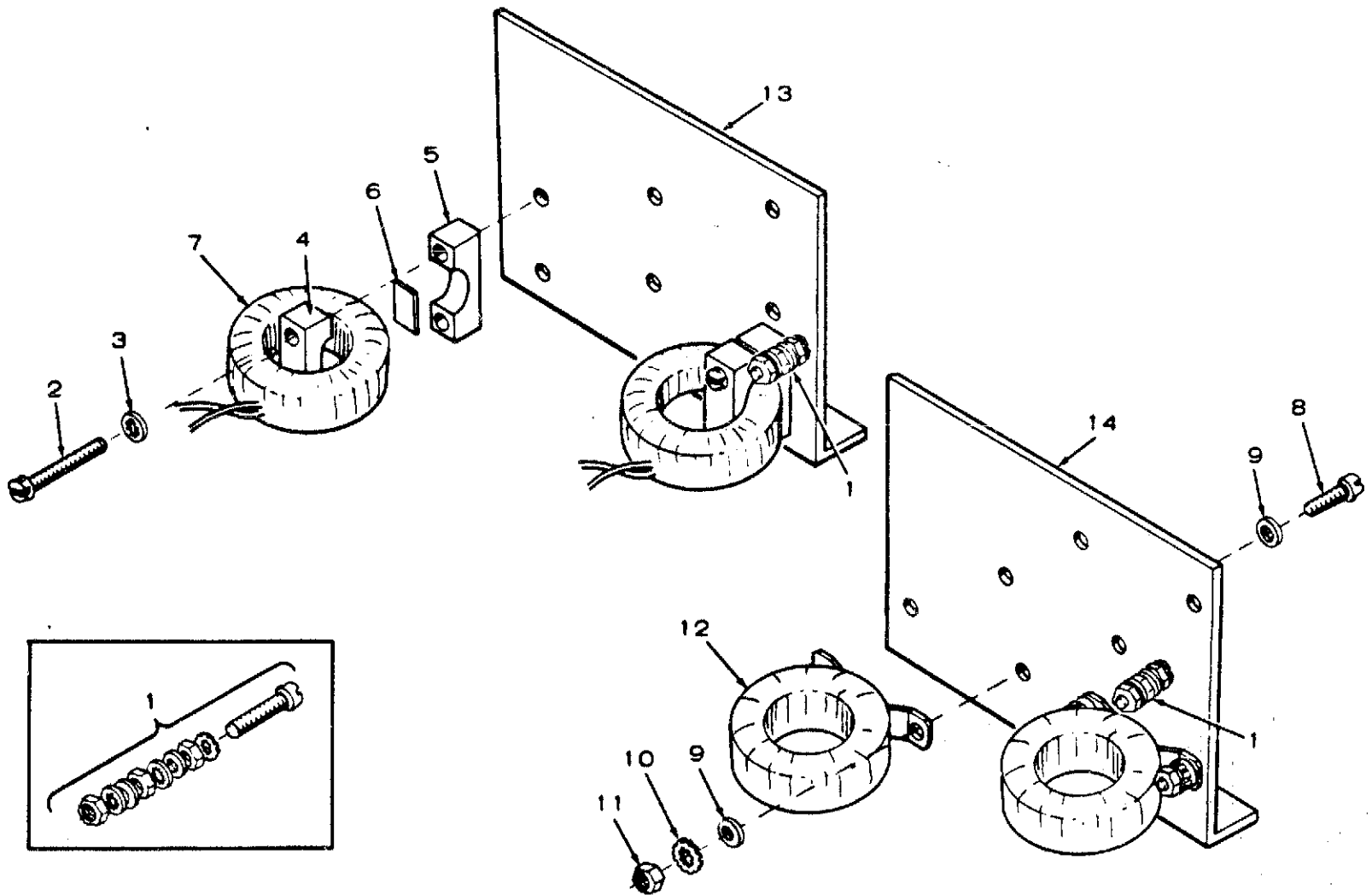
GENERATOR ASSEMBLY - BRUSHLESS TYPE USED WITH REMOTE VOLTAGE REGULATOR

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	800-0003	2	Screw, Cap - Hex Head (1/4-20 x 1-1/2")
2	850-0040	2	Washer, Lock - Spring (1/4")
3	150-1456	1	Contact Assembly - Overspeed Switch (Includes Parts Marked +)
4	862-0001	2	+Nut, Hex (1/4-20)
5	853-0013	1	+Washer, Lock - ET (1/4")
6	150-0723	1	+Contact, Electrical
7	870-0250	1	+Nut, Insulated
8	150-1356	1	+Bracket, Mounting - Contact
9	862-0011	4	Nut, Hex - Grade 8 (3/8-16)
10	850-0050	4	Washer, Lock - Spring (3/8")
11	STUD (Select As Required)		
	520-0721	4	3/8-16 UNC x 16-11/32" Lg
	520-0723	4	3/8-16 UNC x 17-15/16" Lg
12	503-0611	4	Hose, Rubber
13	800-0009	4	Screw, Cap - Hex Head (1/4-20 x 1-1/2")
14	850-0040	4	Washer, Lock - Spring (1/4")
15	STATOR, EXCITER (Select As Required)		
	220-2353	1	Standard
	220-1774	1	£Environmental Protected
16	509-0125	1	Seal, Oil - "O" Ring
17	211-0185	1	End Bell, Generator
18	800-0008	2	Screw, Cap - Hex Head (1/4-20 x 1-1/4")
19	850-0040	2	Washer, Lock - Spring (1/4")
20	862-0001	2	Nut, Hex (1/4-20)
21	234-0368	1	Screen, Air - Generator
22	STATOR ASSEMBLY, GENERATOR		
	50 HERTZ SETS		
	220-1997	1	Code 515
	220-1999		‡Code 515 (Extended Stack)
	60 HERTZ SETS		
	220-1554	1	Code 3
	220-1847	1	£Code 3 (Environmental Protected)
	220-2624	1	Code 6D
	220-2462	1	Code 7
	220-1602	1	Code 9x
	220-1454	1	Code 15
	220-1456	1	‡Code 15 (Extended Stack)
	220-1786	1	£Code 15 (Environmental Protected)
	220-1788	1	‡£Code 15 (Extended Stack and Environmental Protected)
23	800-0048	1	Screw, Cap - Hex Head (3/8-16 x 3/4")
24	856-0010	1	Washer, Lock - EIT (3/8")
25	150-0717	1	Switch, Overspeed

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
26	ROTOR ASSEMBLY, GENERATOR (Includes Parts Marked *)		
	50 HERTZ SETS		
	201-2669	1	Code 515
	201-2671	1	‡Code 515 (Extended Stack)
	60 HERTZ SETS		
	201-2671	1	Code 3
	201-2689	1	‡Code 3 (Environmental Protected)
	201-2669	1	Codes 6D, 7, 9X, 15
	201-2671	1	‡Code 15 (Extended Stack)
	201-2687	1	£Code 15 (Environmental Protected)
	201-2689	1	‡£Code 15 (Extended Stack and Environmental Protected)
27	800-0513	1	*Screw, Cap - Hex Head Modified with 3/8-16 Tapped Center Hole (3/4-10 x 1-1/2")
28	850-0079	1	*Washer, Lock - Spring (3/4")
29	526-0238	1	*Washer, Flat - Steel Alloy (13/16" ID x 2" OD x 3/16" Thk)
30	510-0101	1	*Bearing, Ball
31	232-2102	1	*Spacer, Sleeve
32	*ROTOR ASSEMBLY, EXCITER (See Separate Group for Components)		
	201-1739	1	Standard
	201-1845	1	£Environmental Protected
33	515-0145	1	*Key, Machine (1/4" x 1/4" x 7/8")
34	*BOLT, PLACE - HEX HEAD, GRADE 8 (Select As Required)		
	805-0033	8	5/8-11 x 1"
	805-0035	8	5/8-11 x 1-1/2"
35	526-0259	8	*Washer, Flat - Hardened Steel (11/16" ID x 1-3/8" OD x 7/64" Thk)
36	*BOLT, PLACE - HEX HEAD, GRADE 8 (Select As Required)		
	805-0018	8	3/8-16 x 1"
	805-0019	8	3/8-16 x 1-1/4"
37	205-0089	1	*Fan, Generator
38	232-2078	1	*Disk, Drive - Generator
39	800-0008	1	Screw, Cap - Hex Head (1/4-20 x 1-1/4")
40	850-0040	1	Washer, Lock - Spring (1/4")
41	862-0001	1	Nut, Hex (1/4-20)
42	234-0369	1	Cover, End Bell (Used on Housed Sets Only)

- + - Parts Included in Overspeed Switch Assembly.
- * - Parts Included in Generator Rotor Assembly.
- ‡ - Extended Stack type assemblies that are used on sets having full power output on both single and three phase hookups. Both phases carry same kW and kVA ratings.
- £ - Environmental protected assemblies or parts which are coated with epoxy and are for use in high humidity areas.

CURRENT TRANSFORMER ASSEMBLY

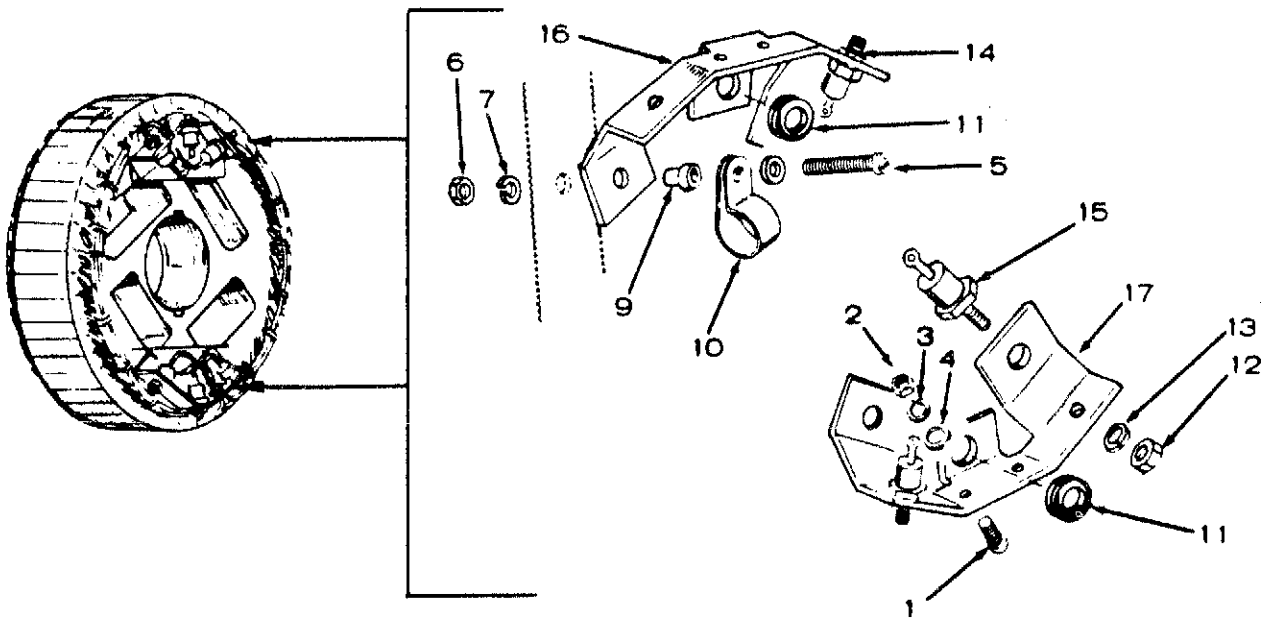


SC-1150

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
CURRENT TRANSFORMER ASSEMBLY (Select Components as Required)			
1	GROUND TERMINAL ASSEMBLY (Includes Following items)		
	815-0203	1	Screw, Machine - Round Head, Brass (#10-32 x 7/8")
	871-0010	3	Nut, Hex - Brass (#10-32)
	856-0003	1	Washer, Lock - EIT (#10)
	854-0010	2	Washer, Lock - IT (#10)
	526-0049	2	Washer, Flat - Brass (13/64" ID x 7/32" OD x 1/32" Thk)
2	813-0110	6	Screw, Machine - Round Head (#10-32 x 2)
3	854-0010	6	Washer, Lock - IT (#10)
4	302-0235	3	Clamp, Upper
5	302-0236	3	Clamp, Lower
6	302-0253	6	Shim

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
7	CURRENT TRANSFORMER (Select Size as Required)		
	302-0117	3	Ratio 50/5, 3 VA
	302-0076	3	Ratio 75/5, 2 VA
	302-0078	3	Ratio 100/5, 2 VA
	302-0079	3	Ratio 150/5, 1 VA
	302-0106	3	Ratio 200/5, 1 VA
	302-0209	3	Ratio 230/5, 1 VA
	302-0107	3	Ratio 300/5, 1 VA
8	813-0100	6	Screw, Machine - Round Head (#10-32 x 1/2")
9	526-0008	6	Washer, Flat (13/64" ID x 7/16" OD x 1/32" Thk)
10	856-0003	6	Washer, Lock - EIT (#10)
11	870-0053	6	Nut, Hex (#10-32)
12	CURRENT TRANSFORMER (Select Size as Required)		
	302-0952	3	Ratio 75/5, 2 VA
	302-0864	3	Ratio 150/5, 2 VA
	302-0865	3	Ratio 200/5, 2 VA
	302-0866	3	Ratio 250/5, 2 VA
	302-0608	3	Ratio 400/5, 2 VA
	302-0547	3	Ratio 500/5, 2 VA
	302-0471	3	Ratio 750/5, 2 VA
13	302-0729	1	Bracket, Mounting - Transformer
14	302-0764	1	Bracket, Mounting - Transformer

EXCITER ROTOR

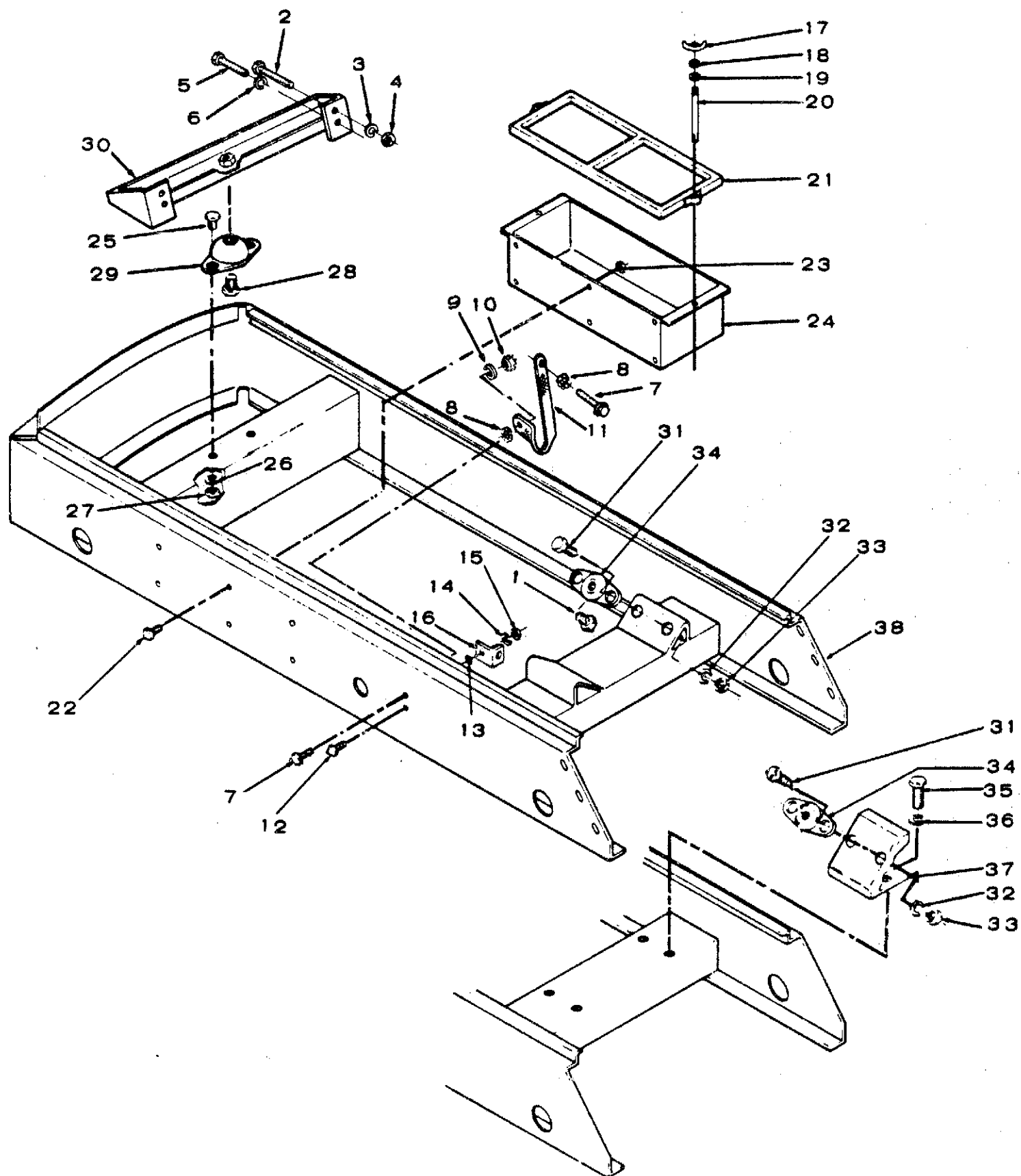


G-1030

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
ROTOR ASSEMBLY, EXCITER (Includes Parts Marked *)			
	201-1739	1	Standard
	201-1845	1	Enviromental Protected (Expoxyed)
1	813-0100	2	Screw, Machine - Round Head (#10-32 x 1/2")
2	870-0053	2	Nut, Hex (#10-32)
3	850-0030	2	Washer, Lock - Spring (#10)
4	526-0008	2	Washer, Flat (13/64" ID x 7/16" OD x 1/32" Thk)
5	813-0110	4	*Screw, Machine - Round Head (#10-32 x 2")
6	870-0053	4	*Nut, Hex (#10-32)
7	850-0030	4	*Washer, Lock - Spring (#10)
8	526-0009	4	*Washer, Flat (7/32" ID x 1/2" OD x 1/16" Thk)
9	508-0187	4	*Spacer, Stepped
10	332-0050	2	*Clamp, Loop
11	508-0093	2	*Grommet, Rubber
12	870-0053	6	*Nut, Hex (#10-32)
13	850-0030	6	*Washer, Lock - Spring (#10)
14	*DIODE, RECTIFIER - POSITIVE (CR1, CR2, CR3)		
	358-0016	3	Standard
	358-0044	3	Enviromental Protected (Expoxyed)
15	*DIODE, RECTIFIER - NEGATIVE (CR4, CR5, CR6)		
	358-0015	3	Standard
	358-0043	3	Enviromental Protected (Expoxyed)
16	363-0054	1	*Heat, Sink - Positive Diodes
17	363-0055	1	*Heat, Sink - Negative Diodes

* - Parts included in Exciter Rotor Assembly

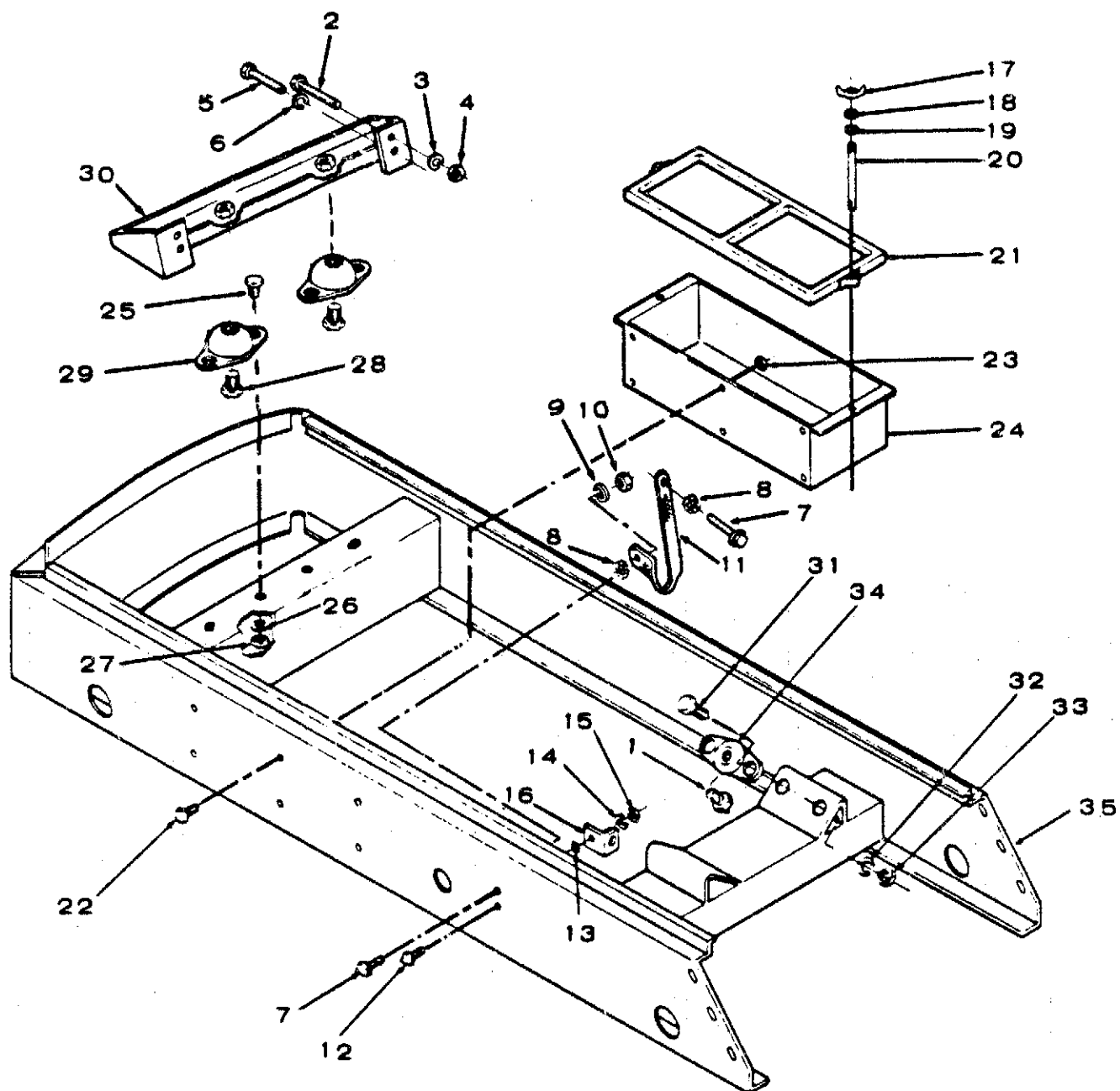
CHASSIS - DDB



CHASSIS — DDB

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	800-0520	2	Screw, Cap - Hex Head (3/4-10 x 1")	20	520-0663	2	Stud (5/16-18 x 5/16-18 x 3-1/4" Lg)
2	800-0095	2	Screw, Cap - Hex Head (1/2-13 x 2-1/4")	21	416-0480	1	Frame, Holddown - Battery
3	850-0060	2	Washer, Lock - Spring (1/2")	22	821-0029	6	Screw, Self-locking - Hex Washer Head (3/8-16 x 3/4")
4	862-0016	2	Nut, Hex (1/2-13)	23	870-0281	6	Nut, Self-locking, Hex Washer Head (3/8-16)
5	800-0132	2	Screw, Cap - Hex Head (5/8-11 x 1-1/2")	24	416-0666	1	Tray - Battery
6	850-0050	2	Washer, Lock - Spring (5/8")	25	800-0090	2	Screw, Cap - Hex Head (1/2-13 x 1")
7	800-0091	2	Screw, Cap - Hex Head (1/2-13 x 1-1/4")	26	850-0060	2	Washer, Lock - Spring (1/2")
8	856-0013	2	Washer, Lock - External/Internal Tooth (1/2")	27	862-0016	2	Nut, Hex (1/2-13)
9	850-0060	1	Washer, Lock - Spring (1/2")	28	800-0520	1	Screw, Cap - Hex Head (3/4-10 x 1")
10	862-0016	1	Nut, Hex (1/2-13)	29	402-0030	1	Mount, Vibration - Engine
11	337-0090	1	Strap, Electrical	30	403-1110	1	Support, Mounting - Engine
12	800-0028	1	Screw, Cap - Hex Head (5/16-18 x 1")	31	800-0071	4	Screw, Cap - Hex Head (7/16-14 x 1")
13	856-0008	1	Washer, Lock - External/Internal Tooth (5/16")	32	850-0055	4	Washer, Lock - Spring (7/16")
14	850-0045	1	Washer, Lock - Spring (5/16")	33	862-0004	4	Nut, Hex (7/16-14)
15	862-0015	1	Nut, Hex (5/16-18)	34	402-0030	2	Mount, Vibration - Generator
16	332-1473	1	Terminal, Lug	35	800-0091	4	Screw, Cap - Hex Head (1/2-13 x 1-1/4")
17	865-0007	2	Nut, Wing (5/16-18)	36	850-0060	4	Washer, Lock - Spring (1/2")
18	850-0045	2	Washer, Lock - Spring (5/16")	37	232-2106	2	Bracket, Mounting — Spec A Thru B
19	526-0115	2	Washer, Flat (11/32" ID x 11/16" OD x 1/16" Thk)	38	403-1112	1	Chassis (NOTE: Begin Spec C. Generator Mounting Brackets are welded in place.)

CHASSIS - LDD8



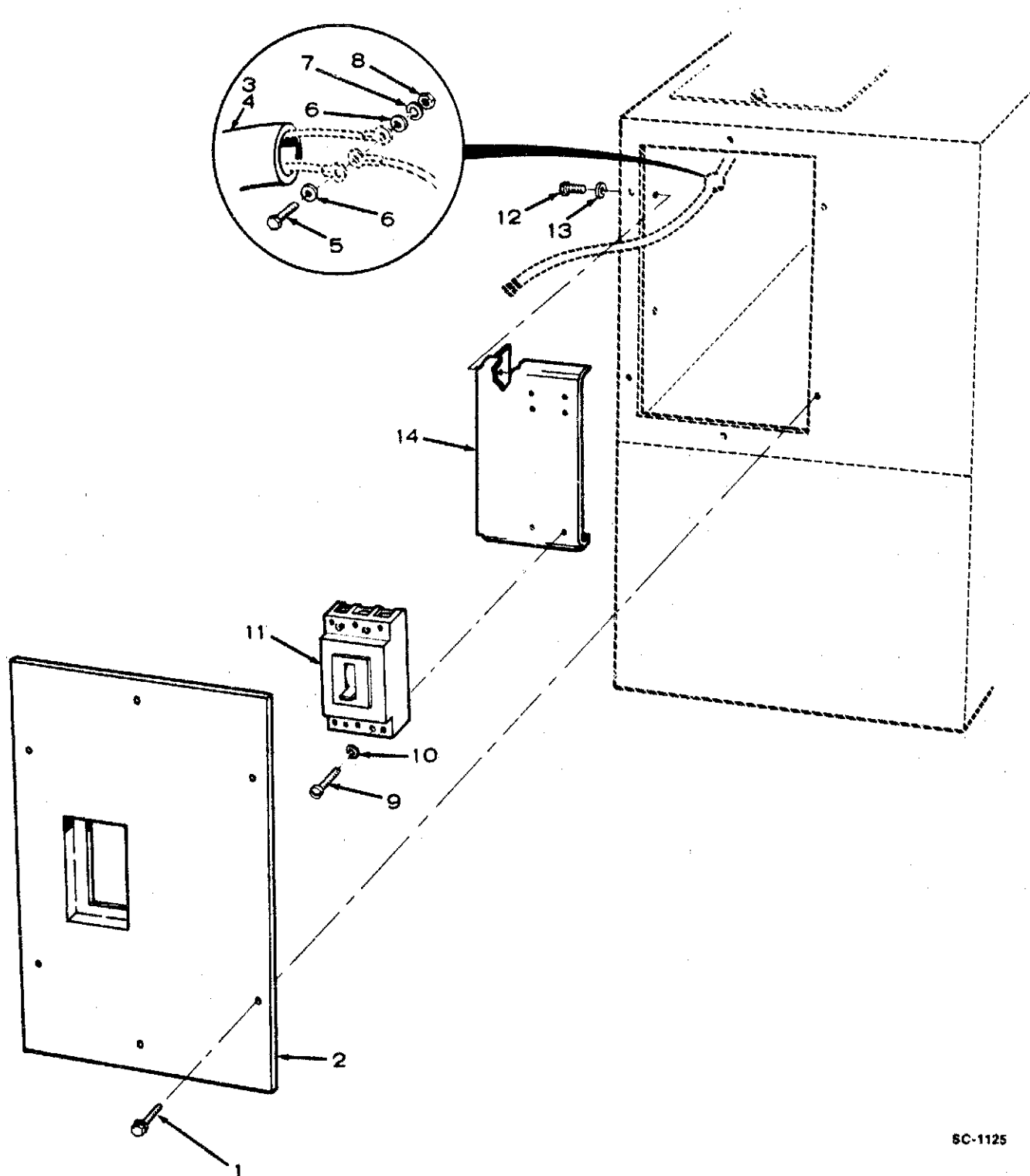
CHASSIS - LDD8

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	800-0520	2	Screw, Cap - Hex Head (3/4-10 x 1")	20	520-0662	2	Stud (5/16-18 x 5/16-18 x 3-1/4" Lg)
2	800-0095	2	Screw, Cap - Hex Head (1/2-13 x 2-1/4")	21	416-0480	1	Frame, Holddown - Battery
3	850-0060	2	Washer, Lock - Spring (1/2")	22	821-0029	6	Screw, Self-locking - Hex Washer Head (3/8-16 x 3/4")
4	862-0016	2	Nut, Hex (1/2-13)	23	670-0281	6	Nut, Self-locking, Hex Washer Head (3/8-16)
5	800-0132	2	Screw, Cap - Hex Head (5/8-11 x 1-1/2")	24	416-0666	1	Tray - Battery
6	850-0050	2	Washer, Lock - Spring (5/8")	25	800-0090	4	Screw, Cap - Hex Head (1/2-13 x 1")
7	800-0091	2	Screw, Cap - Hex Head (1/2-13 x 1-1/4")	26	850-0060	4	Washer, Lock - Spring (1/2")
8	856-0013	2	Washer, Lock - External/Internal Tooth (1/2")	27	862-0016	4	Nut, Hex (1/2-13)
9	850-0060	1	Washer, Lock - Spring (1/2")	28	800-0520	2	Screw, Cap - Hex Head (3/4-10 x 1")
10	862-0016	1	Nut, Hex (1/2-13)	29	402-0371	2	Mount, Vibration - Engine
11	337-0090	1	Strap, Electrical	30	403-1374	1	Support, Mounting - Engine
12	800-0028	1	Screw, Cap - Hex Head (5/16-18 x 1")	31	800-0071	4	Screw, Cap - Hex Head (7/16-14 x 1")
13	856-0008	1	Washer, Lock - External/Internal Tooth (5/16")	32	850-0055	4	Washer, Lock - Spring (7/16")
14	850-0045	1	Washer, Lock - Spring (5/16")	33	862-0004	4	Nut, Hex (7/16-14)
15	862-0015	1	Nut, Hex (5/16-18)	34	402-0030	2	Mount, Vibration - Generator
16	332-1473	1	Terminal, Lug	35	403-1403	1	Chassis
17	865-0007	2	Nut, Wing (5/16-18)				
18	850-0045	2	Washer, Lock - Spring (5/16")				
19	526-0115	2	Washer, Flat (11/32" ID x 11/16" OD x 1/16" Thk)				

OPTIONAL EQUIPMENT SECTION

This section contains parts listing of factory installed options.
NOTE: options may not be applicable to all models; for field installations, additional parts are usually required.

OPTIONAL CIRCUIT BREAKER

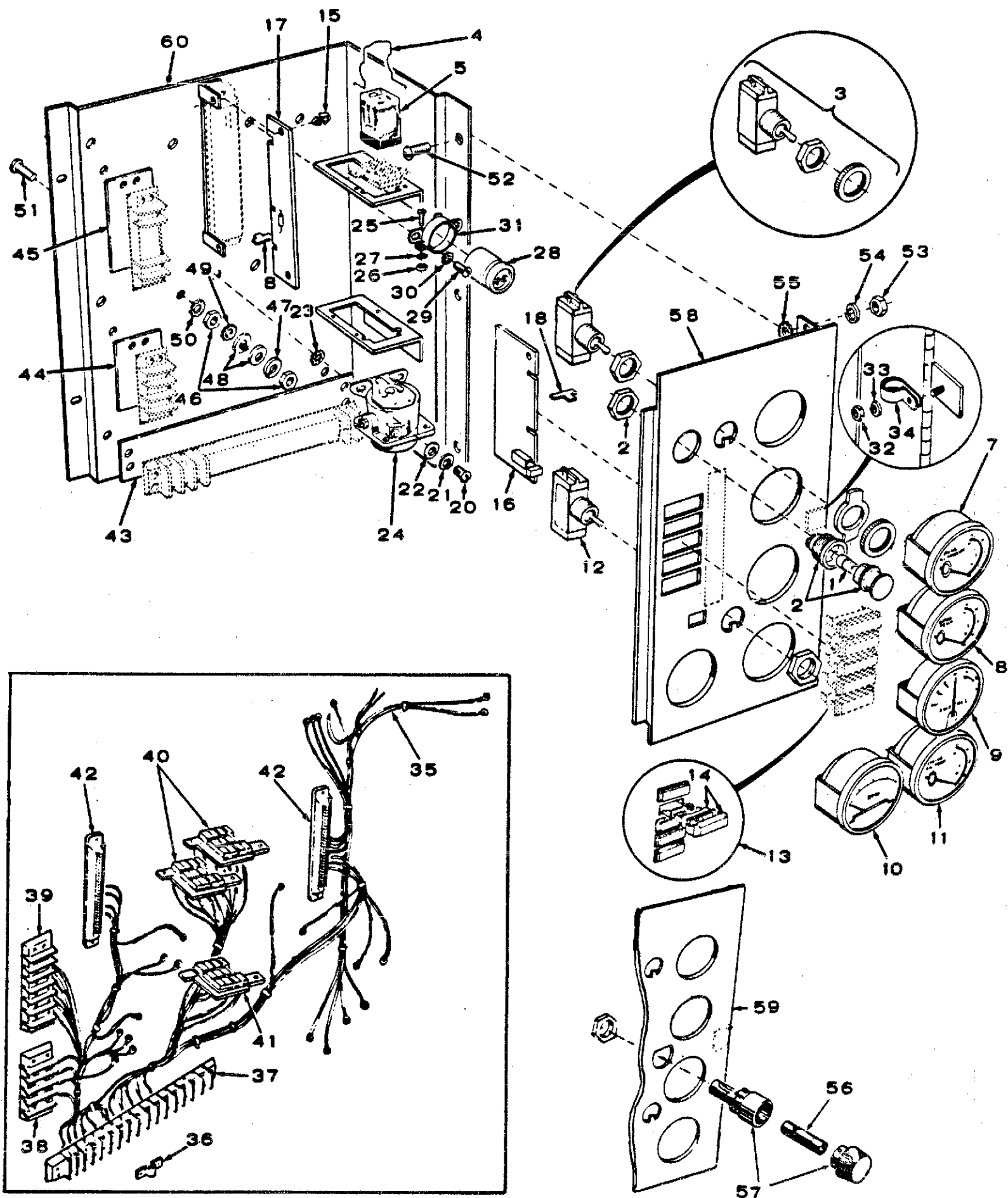


SC-1125

OPTIONAL CIRCUIT BREAKER

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	815-0350	6	Screw, Tapping - Hex Washer Head (#10-32 x 3/8)				125 AMP
2	301-3192	1	Panel, Cover - Circuit Breaker	320-0419	1		125 AMP, 3 PH, 200/346 - 220/380 VAC
3	SLEEVING, INSULATION - SHRINKABLE (Select as Required)						150 AMP
	898-0863		3/4" ID	320-0346	1		150 AMP, 3 PH, 120/208 - 120/240 VAC
	898-0865		1" ID				
	898-0875		1-1/2" ID	320-0425	1		150 AMP, 3 PH, 200/346 VAC
	898-0869		2" ID	320-0772	1		150 AMP, 3 PH, 127/220 VAC with 12 VDC shunt trip and AUX contacts
4	SLEEVING, INSULATION — FIBERGLASS (Select as Required)						175 AMP
	898-0974		3/4" ID	320-0344	1		175 AMP, 1 PH, 120/240 VAC
	898-0976		1" ID	320-0347	1		175 AMP, 3 PH, 120/208 - 120/240 VAC
5	800-0028	5	Screw, Cap - Hex Head (5/16-18 x 1")	320-0773	1		175 AMP, 3 PH, 127/220 VAC with 12 VDC shunt trip and AUX contacts
6	526-0022	10	Washer, Flat (21/64" ID x 9/16" OD x 1/16" Thk)				200 AMP
7	850-0045	5	Washer, Lock - Spring (5/16")				
8	862-0015	5	Nut, Hex (5/16-18)	320-0348	1		200 AMP, 3 PH, 120/208 - 120/240 VAC
9	812-0094	4	Screw, Machine - Round Head (#8-32 x 3-5/8")				225 AMP
10	850-0025	4	Washer, Lock - Spring (#8)				
11	CIRCUIT BREAKER (Select as Required)						
			40-50-60 AMP	320-0359	1		225 AMP, 1 PH, 120/240 VAC
	320-0415	1	40 AMP, 3 PH, 347/600 VAC	320-0349	1		225 AMP, 3 PH, 120/208 VAC
	320-0413	1	50 AMP, 3 PH, 277/480 VAC				
	320-0384	1	60 AMP, 3 PH, 200/346 - 220/380 VAC	12	800-0003	2	Screw, Cap - Hex Head (1/4-20 x 1/2")
	320-0416	1	60 AMP, 3 PH, 347/600 VAC	13	850-0040	2	Washer, Lock - Spring (1/4")
			70-90-100 AMP	14	301-3197	1	Bracket, Mounting - Circuit Breaker
	320-0414	1	70 AMP, 3 PH, 277/480 VAC				
	320-0417	1	70 AMP, 3 PH, 347/600 VAC				
	320-0411	1	90 AMP, 3 PH, 120/240 VAC				
	320-0379	1	90 AMP, 3 PH, 200/346 - 220/380 - 277/480 VAC				
	320-0418	1	90 AMP, 3 PH, 347/600 VAC				
	320-0412	1	100 AMP, 3 PH, 120/208 VAC				
	320-0380	1	100 AMP, 3 PH, 200/346 - 220/380 - 277/480 VAC				
	320-0771	1	100 AMP, 3 PH, 127/220 VAC with 24 VDC shunt trip and AUX contacts				

OPTIONAL ENGINE CONTROL WITH FIVE FAULT LIGHTS



OPTIONAL ENGINE CONTROL WITH FIVE FAULT LIGHTS

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	322-0004	1	Lamp Incandescent (12 VDC)
2	322-0149	1	Lampholder
3	308-0002	1	Switch, Toggle (SPST)
4	307-1157	3	Spring, Holddown - Relay
5	RELAY (12 VDC)		
	307-1058	1	(Ignition)
	307-1058	1	(Start Disconnect)
	307-1061	1	(Starter Protection)
7	193-0243	1	Gauge - Oil Pressure (12 VDC)
8	193-0245	1	Gauge - Water Temperature (12 VDC)
9	302-0061	1	Ammeter
10	302-0749	1	† Tachometer - Electrical
11	193-0248	1	† Gauge - Oil Temperature (12 VDC)
12	SWITCH, TOGGLE - SELECTOR		
	308-0138	1	Standard & Cycle Cranking Controls
	309-0327	1	Penn State Controls
13	*LIGHT, INDICATOR - 14 VDC (Lens Color & Legend Listed Below)		
	322-0107	1	Red - OVERCRANK
	322-0111	1	Red - OVERSPEED
	322-0108	1	Red - LO OIL PRESS
	322-0109	1	Red - HI ENG TEMP
	322-0110	2	Red - LO ENG TEMP
14	322-0136	1	*Light, Indicator - 14 VDC (Red Lens - No Legend)
15	518-0374	4	Fastener, Snap-In (Printed Circuit Boards)
16	PRINTED CIRCUIT BOARD ASSEMBLY		
	300-0733	1	Standard Cranker (12 VDC)
	300-0714	1	Cycle Cranker (12 VDC)
17	PRINTED CIRCUIT BOARD ASSEMBLY		
	300-0681	1	Engine Control Monitor - Standard
18	332-1276	4	Plug, Keying - PC Board
20	813-0098	2	Screw, Machine - Round Head (#10-32 x 3/8")
21	850-0030	2	Washer, Lock - Spring (#10)
22	526-0009	2	Washer, Flat (7/32" ID x 1/2" OD x 1/16" Thk)
23	856-0003	2	Washer, Lock - EIT (#10)
24	307-1031	1	Relay, Solenoid - Start (12 VDC)
25	812-0061	1	Screw, Machine - Round Head (#6-32 x 3/8")
26	860-0006	1	Nut, Hex (#6-32)
27	853-0003	1	Washer, Lock - ET (#6)
28	356-0072	1	Capacitor, Fixed Electrolytic (4000 MFD, 30 VDC)
29	812-0063	2	Screw, Machine - Round Head (#6-32 x 1/2")
30	853-0003	2	Washer, Lock - ET (#6)
31	356-0070	1	Clamp, Capacitor Mounting
32	870-0053	1	Nut, Hex (#10-32)
33	850-0030	1	Washer, Lock - Spring (#10)
34	332-0051	1	Clamp, Loop

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
35	HARNESS, WIRING - ENGINE CONTROL		
	338-1066	1	Includes Parts Marked +
	338-1221	1	£ Includes Parts Marked +
	ATTACHING HARDWARE FOR WIRING HARNESS		
	812-0063	6	Screw, Machine - Round Head (#6-32 x 1/2")
	812-0066	6	Screw, Machine - Round Head (#6-32 x 3/4")
	853-0003	14	Washer, Lock - ET (#6)
	860-0006	10	Nut, Hex (#6-32)
36	332-1043	1	+Jumper, Terminal
37	332-0795	1	+Block, Terminal - 20 Place
38	332-0537	1	+Block, Terminal - 4 Place
39	332-0699	1	+Block, Terminal - 6 Place
40	323-0765	2	+Socket, Relay - 11 Place
41	323-0764	2	+Socket, Relay - 8 Place
42	332-1271	1	+Connector, Electrical - PC BD
43	332-1559	1	Strip, Marker - Terminal
44	332-1239	1	Strip, Marker - Terminal
45	332-1240	1	Strip, Marker - Terminal
	GROUND TERMINAL ASSEMBLY (Includes Parts Marked #)		
46	871-0010	2	#Nut, Hex - Brass (#10-32)
47	850-0030	1	#Washer, Lock - Spring (#10)
48	526-0062	2	#Washer, Flat - Brass (13/64" ID x 1/2" OD x 1/16" Thk)
49	853-0008	1	#Washer, Lock - ET (#10)
50	856-0003	1	#Washer, Lock - EIT (#10)
51	815-0203	1	#Screw, Machine - Round Head, Brass (#10-32 x 7/8")
52	815-0026	5	Screw, Machine - Truss Head (#10-32 x 3/8")
53	870-0053	1	Nut, Hex (#10-32)
54	850-0030	1	Washer, Lock - Spring (#10)
55	856-0003	1	Washer, Lock - EIT (#10)
56	321-0181	1	£ Fuse (5 Amp)
57	321-0217	1	£ Fuseholder
	PANEL, CONTROL - ENGINE		
	301-3267	1	With Three Gauge Mtg. Holes
	301-3286	1	With Four Gauge Mtg. Holes
	301-3166	1	With Five Gauge Mtg. Holes
58	£ PANEL, CONTROL - ENGINE		
	301-4831	1	With Three Gauge Mtg. Holes
	301-6152	1	With Four Gauge Mtg. Holes
	301-6166	1	With Five Gauge Mtg. Holes
59	301-3253	1	Bracket, Mounting - Engine Control

* - NOTE: For lamp replacement order 322-0136
Remove and discard plain red lens, install lens with legend from burned out light - lights snap in and out of panel.

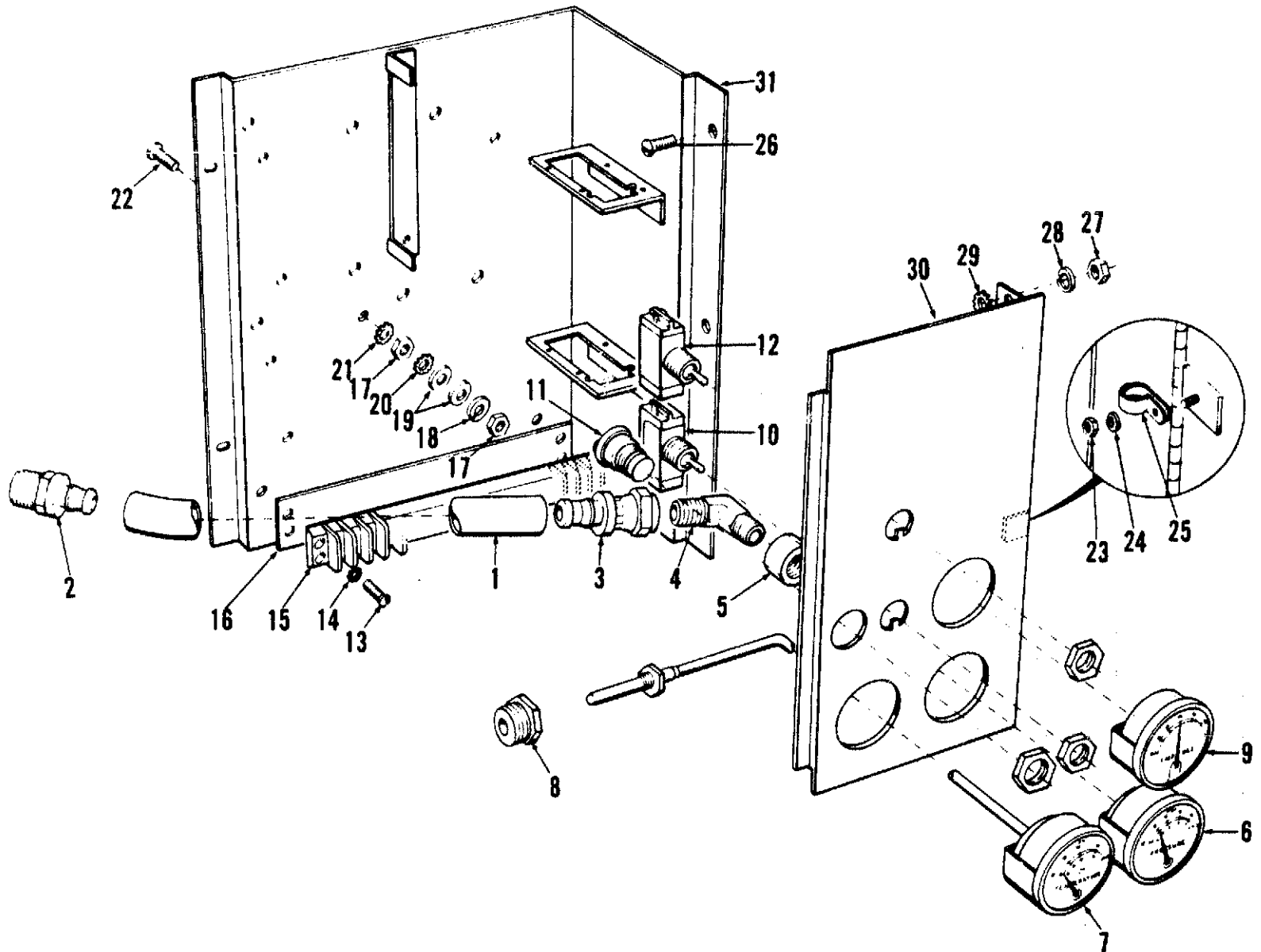
† - Optional items used with Engine Mounted Senders.

+ - Parts Included in Wiring Harness

- Parts Included in Ground Terminal Assembly

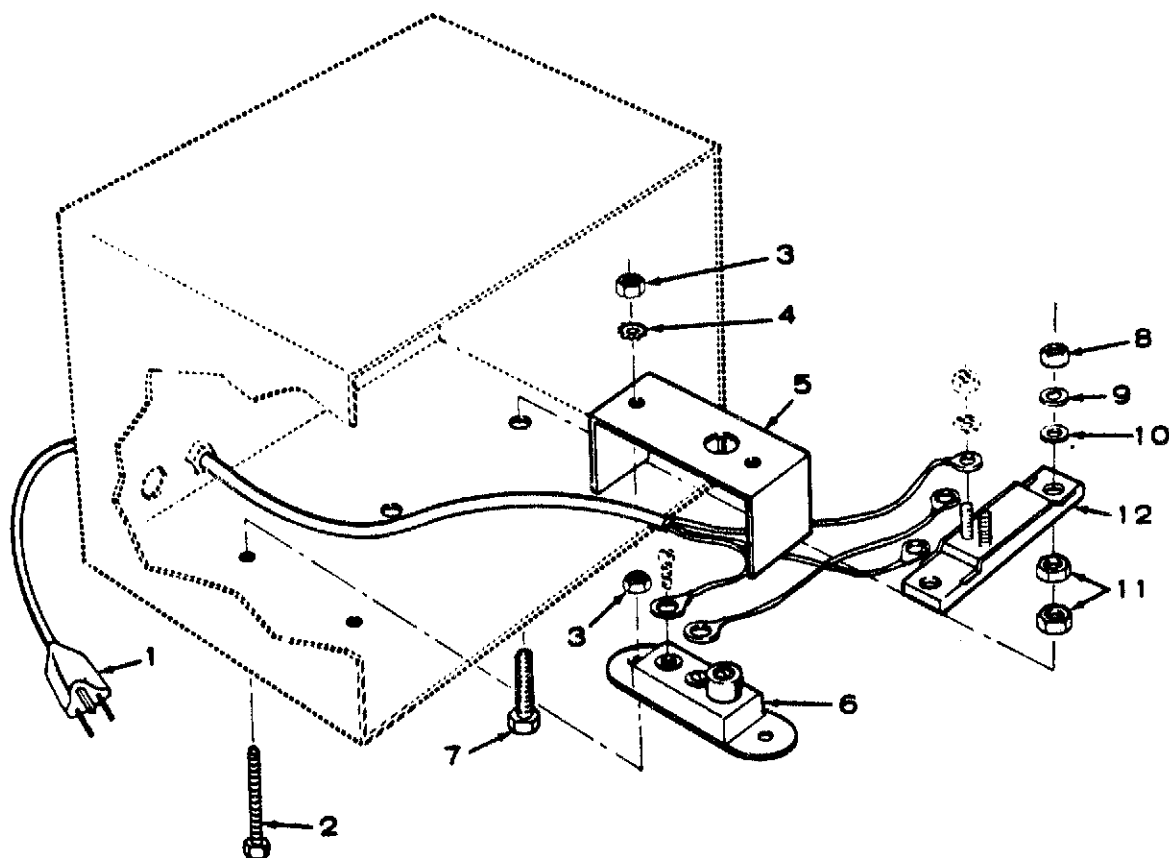
£ - Parts Used on Hi Ambient Temp (L) Type GenSets.

OPTIONAL ENGINE CONTROL WITH MECHANICAL GAUGES



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	503-1077	1	Hose, Rubber - High Pressure (1/4" ID x 1/2" OD x 96" lg)	13	812-0066	2	Screw, Machine - Round Head (#6-32 x 3/4")
2	502-0444	1	Adapter, Pipe to Hose - Male (1/8" NPT x 1/4" ID Hose)	14	853-0003	2	Washer, Lock - ET (#6)
3	502-0445	1	Adapter, Pipe to Hose - Female (7/16-20 UNF x 1/4" ID Hose)	15	332-0795	1	Block, Terminal - 20 Place
4	502-0583	1	Elbow, Pipe - 45 Deg. (7/16-20 UNF x 1/8" NPT)	16	332-1241	1	Strip, Marker - Terminal
5	502-0051	1	Coupling, Pipe (1/8" NPT)	GROUND TERMINAL ASSEMBLY			
6	GAUGE, OIL PRESSURE (Select as Required)			17	871-0010	2	Nut, Hex - Brass (#10-32)
	193-0232	1	Scale Range 0 to 75 PSI	18	850-0030	1	Washer, Lock - Spring (#10)
	193-0233	1	Scale Range 0 to 150 PSI	19	526-0062	2	Washer, Flat - Brass (13/64" ID 1/2" OD x 1/16" Thk)
7	GAUGE, TEMPERATURE (Select as Required)			20	853-0008	1	Washer, Lock - ET (#10)
	193-0234	1	With 72" Capillary Tube	21	856-0003	1	Washer, Lock - EIT (#10)
	193-0235	1	With 84" Capillary Tube	22	815-0203	1	Screw, Machine - Round Head, Brass (#10-32 x 7/8")
	193-0236	1	With 96" Capillary Tube				
	193-0305	1	With 144" Capillary Tube	23	870-0053	1	Nut, Hex (#10-32)
8	REF		Reducer, Hex (Included with Gauge) (5/8-18 UNF x 1/2" NPT)	24	850-0030	1	Washer, Lock - Spring (#10)
9	302-0061	1	Ammeter	25	332-0051	1	Clamp, Loop
10	308-0088	1	Switch, Toggle (DPST)	26	815-0026	5	Screw, Machine - Truss Head (#10-32 x 3/8")
11	308-0297	1	Switch, Push	27	870-0053	1	Nut, Hex (#10-32)
12	308-0155	1	Switch, Toggle (SPST)	28	850-0030	1	Washer, Lock - Spring (#10)
				29	856-0003	1	Washer, Lock - EIT (#10)
				30	301-4009	1	Panel, Control - Engine
				31	301-3253	1	Bracket, Mounting - Engine Control

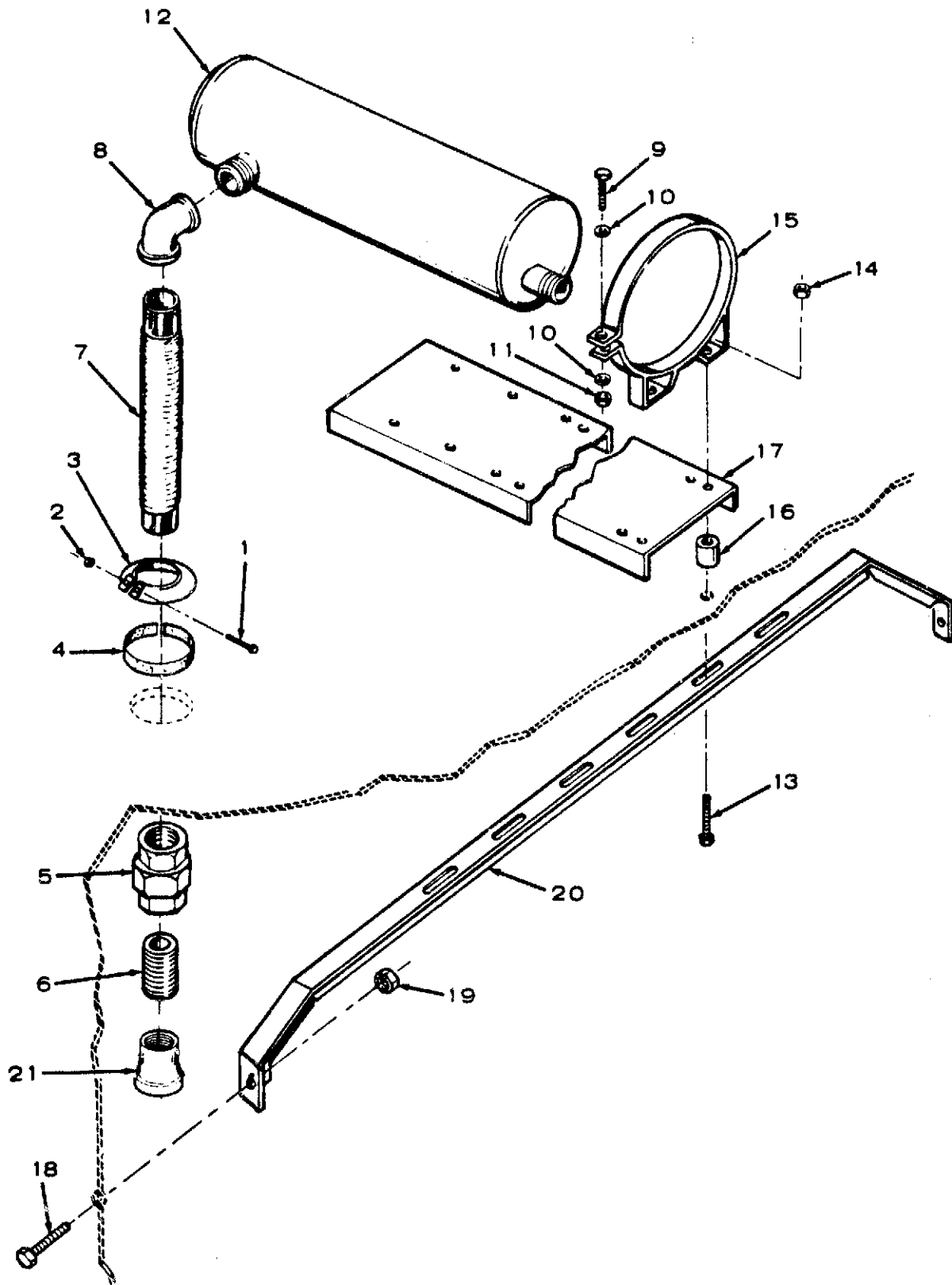
OPTIONAL CONTROL HEATER



SC-1158

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	335-0110	1	Cable, Electrical (3 Wire)
2	812-0090	2	Screw, Machine - Round Head (#6-32 x 2-1/4")
3	860-0006	4	Nut, Hex (#6-32)
4	856-0001	2	Washer, Lock - EIT (#6)
5	301-1886	1	Cover, Thermostat
6	309-0128	1	Thermostat - Adjustable
7	800-0007	2	Screw, Cap - Hex Head (1/4-20 x 1")
8	862-0001	2	Nut, Hex (1/4-20)
9	850-0040	2	Washer, Lock - Spring (1/4)
10	526-0052	2	Washer, Flat (17/64" ID x 9/16" OD x 1/16" Thk)
11	862-0015	4	Nut, Hex (5/16-18) - Used As Spacers
12	333-0151	1	Heater - 75 Watt, 120 VAC; 300 Watt, 240 VAC

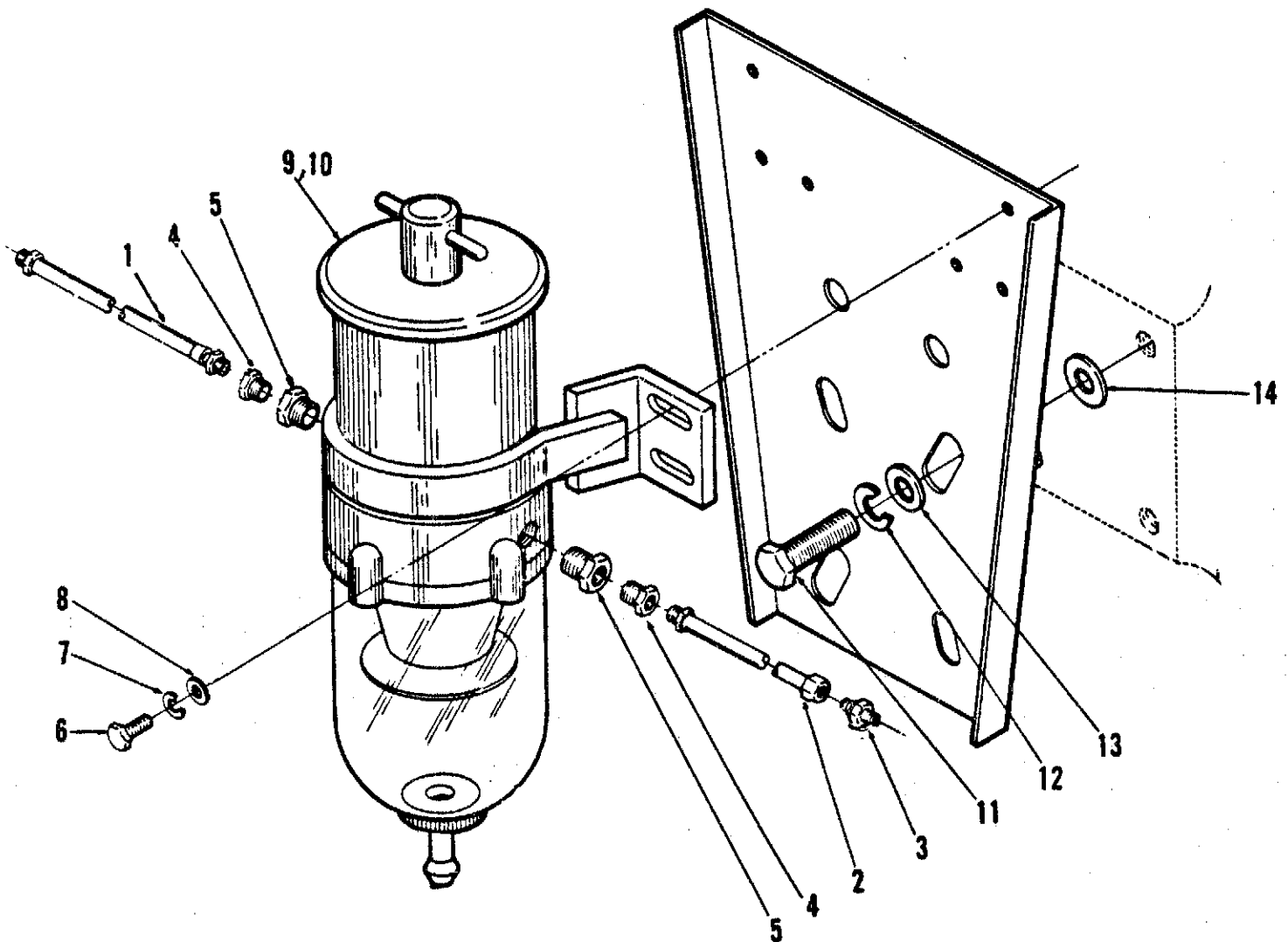
OPTIONAL EXHAUST SYSTEM (HOUSED SETS)



OPTIONAL EXHAUST SYSTEM (HOUSED SETS)

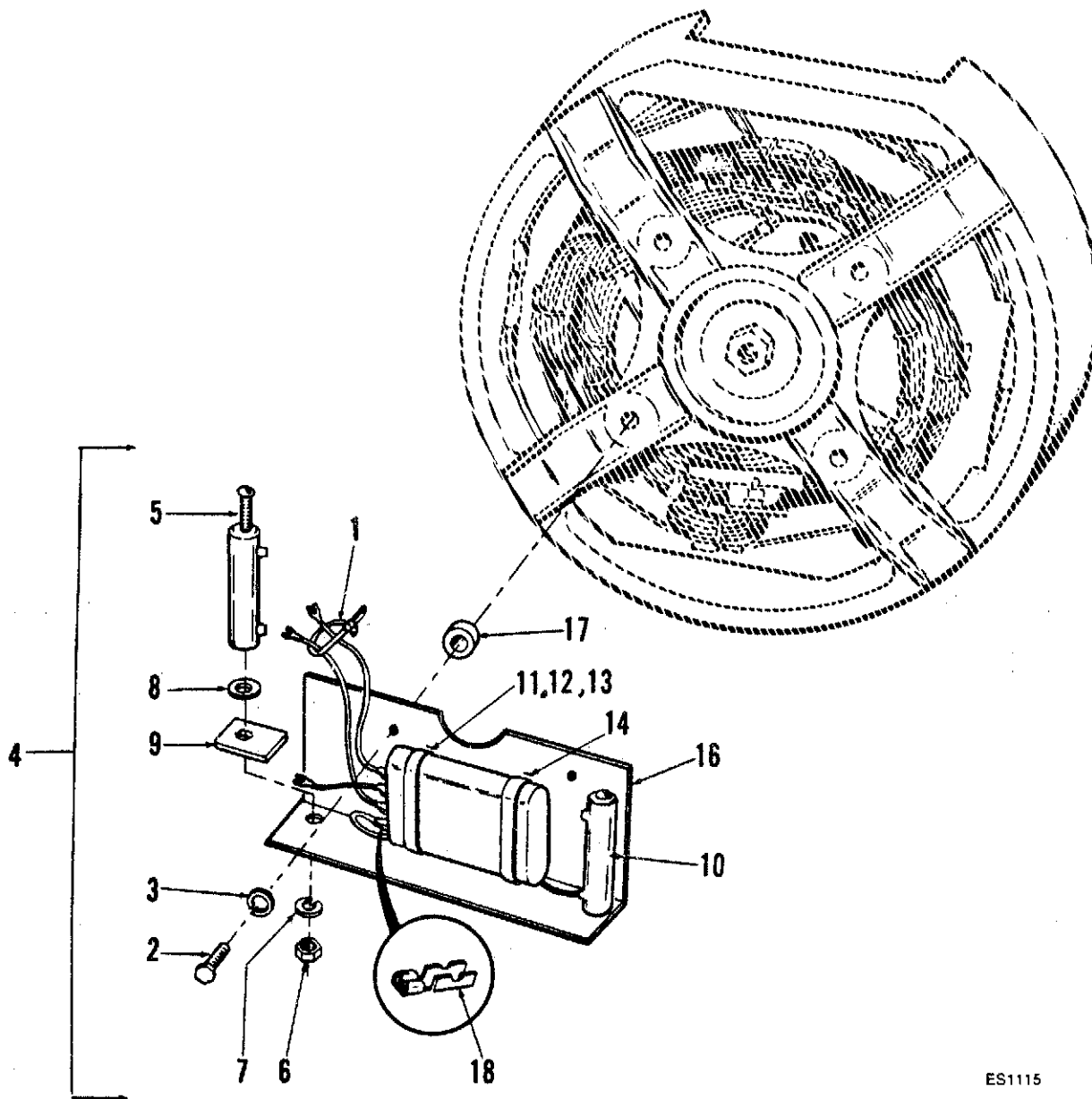
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	813-0105	1	Screw, Machine - Round Head (#10-32 x 1")
2	870-0188	1	Nut, Self-locking, Hex (#10-32)
3	155-1421	1	Shield, Rain (2-1/2" ID)
4	895-0158	1	Asbestos, Strip (2" x 10" x 1/16" Thk)
5	505-0454	1	Union, Pipe (2" NPT)
6	505-0172	1	Nipple, Pipe - Close (2" NPT x 2" Lg)
7	TUBE, EXHAUST		
	155-1591	1	2" NPT x 10-3/4" Lg
	155-1593	1	2" NPT x 12-3/4" Lg
	155-1649	1	2" NPT x 11-7/8" Lg
8	505-0175	1	Elbow, Pipe - 90 DEG (2" NPT)
9	800-0037	3	Screw, Cap - Hex Head (5/16-18 x 3")
10	526-0113	6	Washer, Flat (11/32" ID x 1" OD x 3/32" Thk)
11	870-0257	3	Nut, Self-locking, Hex Washer Head (5/16-18)
12	MUFFLER, EXHAUST		(Select as Applicable)
	155-0988	1	Industrial (10" OD x 43" Lg)
	155-1512	1	Industrial, SST (10" OD x 43" Lg)
	155-1617	1	Critical (12" OD x 44" Lg)
13	800-0037	6	Screw, Cap - Hex Head (5/16-18 x 3")
14	870-0048	6	Nut, Self-locking, Hex (5/16-18)
15	BAND, MOUNTING - MUFFLER		
	140-0649	3	10" ID
	140-1588	3	10" ID, SST
	140-0752	3	12" ID
16	155-1430	6	Spacer, Sleeve (1/2" ID x 1-1/2" OD x 2" Thk)
17	HEAT SHIELD		
	155-0978	1	10" W x 36" Lg
	155-1644	1	10" W x 36" Lg, SST
	155-1648	1	10" W x 40" Lg, SST
18	800-0026	6	Screw, Cap - Hex Head (5/16-18 x 3/4")
19	870-0048	6	Nut, Self-locking, Hex (5/16-18)
20	155-0789	3	Support, Mounting - Muffler
21	505-0111	1	Coupling, Reducer (2-1/2" x 2")

OPTIONAL FILTER - SEPARATOR (FUEL/WATER)



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	501-0008	1	Line, Fuel - Flexible
2	501-0008	1	Line, Fuel - Flexible
3	502-0003	1	Connector, Line - Inverted Male
4	502-0029	2	Bushing, Reducer - Hex
5	502-0639	2	Adapter - Pipe to Line
6	800-0005	4	Screw, Cap - Hex Head (1/4-20 x 3/4")
7	850-0040	4	Washer, Lock-Spring (1/4")
8	526-0015	4	Washer, Flat (9/32" ID x 9/16" OD x 1/16" Thk)
9	149-1612	1	Filter - Fuel/Water (Includes Element)
10	149-1690	1	Element - Fuel Filter
11	800-0091	4	Screw, Cap - Hex Head (1/2-13 x 1-1/4")
12	850-0060	4	Washer, Lock - Spring (1/2")
13	526-0028	4	Washer, Flat (9/16" ID x 15/16" OD x 1/16" Thk)
14	526-0219	8	Washer, Flat (12/32" ID x 1" OD x 1/8" Thk)
15	149-1614	1	Bracket, Mounting - Fuel Filter

OPTIONAL VOLTAGE REGULATOR FILTER

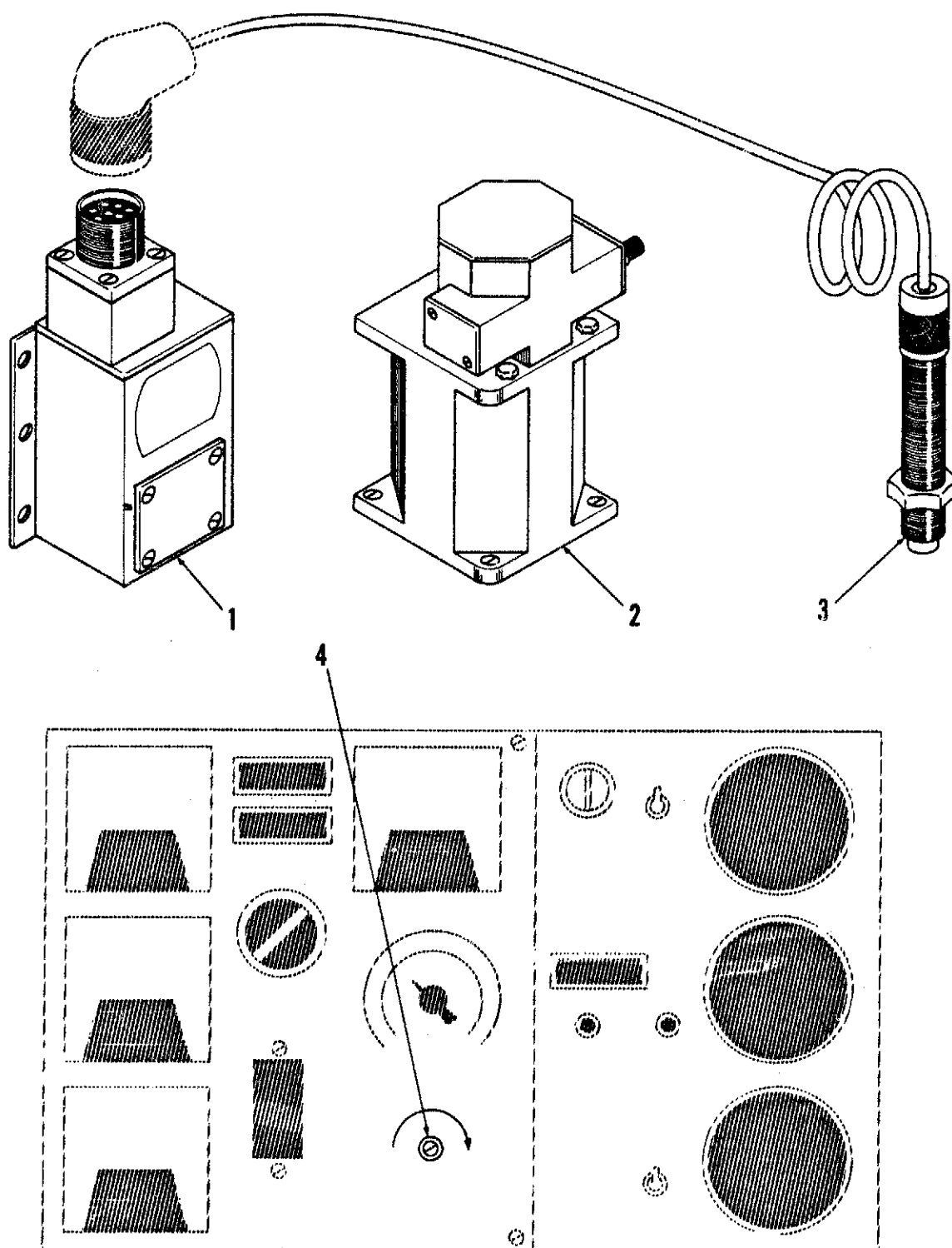


ES1115

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	KIT, FILTER - VOLTAGE REGULATOR (Includes Parts Marked *)						
	232-2694	1	Used on Sets with End Bell Mounted Voltage Regulator	7	850-0040	2	Washer, Lock - Spring (1/4")
	232-2695	1	Used on Sets with Voltage Regulator Mounted in Control Box	8	304-0427	4	Washer, Centering (1/4")
1	332-0941	5	*Tie, Cable	9	304-0292	2	Insulator
2	800-0003	2	*Screw, Cap - Hex Head (1/4-20 x 1/2")	10	354-0025	2	Resistor, Fixed, Wire Wound (10-Ohm, 100 Watt)
3	850-0040	2	*Washer, Lock - Spring (1/4")	11	813-0098	4	Screw, Machine - Round Head (#10-32 x 3/8")
4	*FILTER ASSEMBLY (Includes all Parts Except as Indicated)			12	870-0053	4	Nut, Hex (#10-32)
	232-2219	REF	Part of Kit 232-2694	13	850-0030	4	Washer, Lock - Spring (#10)
	232-2692	REF	Part of Kit 232-2695	14	312-0189	2	Bracket, Mounting - Capacitor
5	812-0165	2	Screw, Machine - Round Head (1/4-20 x 4-1/2")	15	312-0188	1	Capacitor, Fixed - 15 MFD, 440 VAC
6	862-0001	2	Nut, Hex (1/4-20)	16	232-2210	1	Bracket, Mounting
				17	232-2693	3	Spacer (Part of 232-2692 Only)
				18	TERMINALS (Select as Required)		
					332-1279	8	Insulated 14-16 AWG
					332-0529	4	Lug 14-16 AWG

* Parts included in kits.

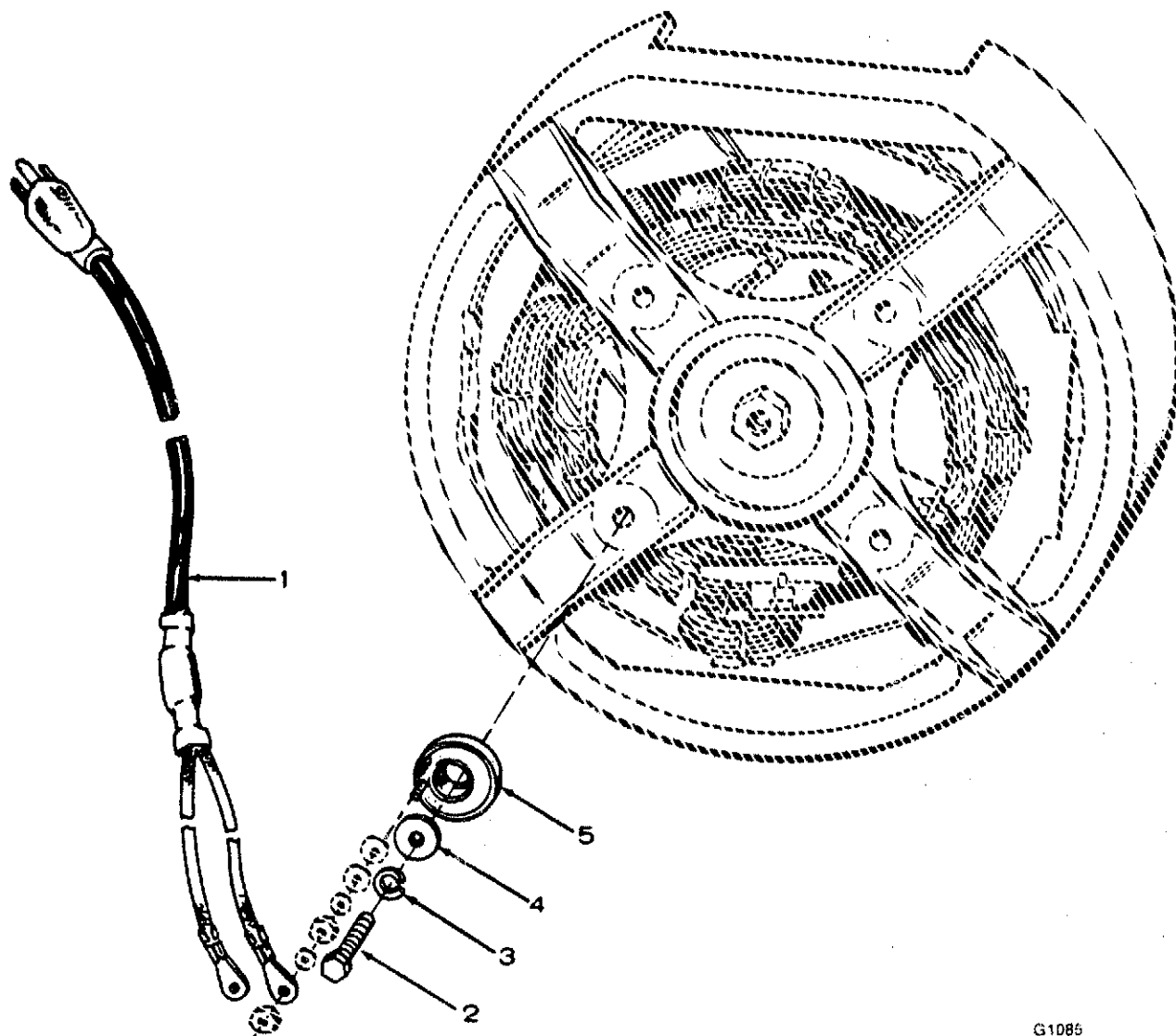
OPTIONAL GOVERNOR



XFS1272

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	151-0430	1	Control Unit - Governor (12V)
2	151-0452	1	Actuator - Governor (12V)
3	151-0411	1	Pickup, Magnetic
4	151-0402	1	Potentiometer - Speed Control (5K Ohms)

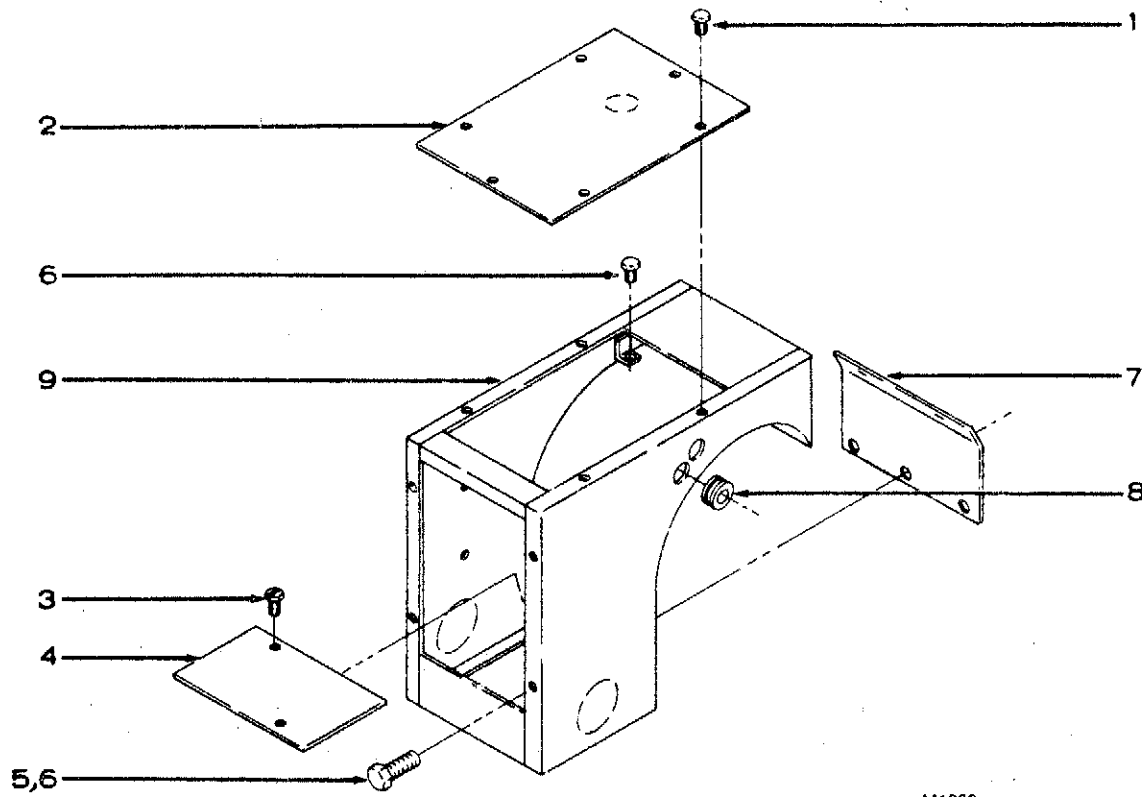
OPTIONAL GENERATOR HEATER



G1085

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	HEATER, GENERATOR		
		1	120 Volt
		1	240 Volt
1	CABLE ASSEMBLY (Includes Thermostat)		
	335-0146	1	120 Volt
	335-0147	1	240 Volt
2	800-0004	1	Screw, Cap - Hex Head (1/4-20 x 5/8")
3	850-0038	1	Washer, Lock - Spring (1/4")
4	526-0158	1	Washer, Flat (17/64" ID 1" OD x 1/8" Thk)
5	HEATER, ELECTRICAL		
	333-0059	1	120 Volt, 125 Watt
	333-0192	1	240 Volt, 200 Watt

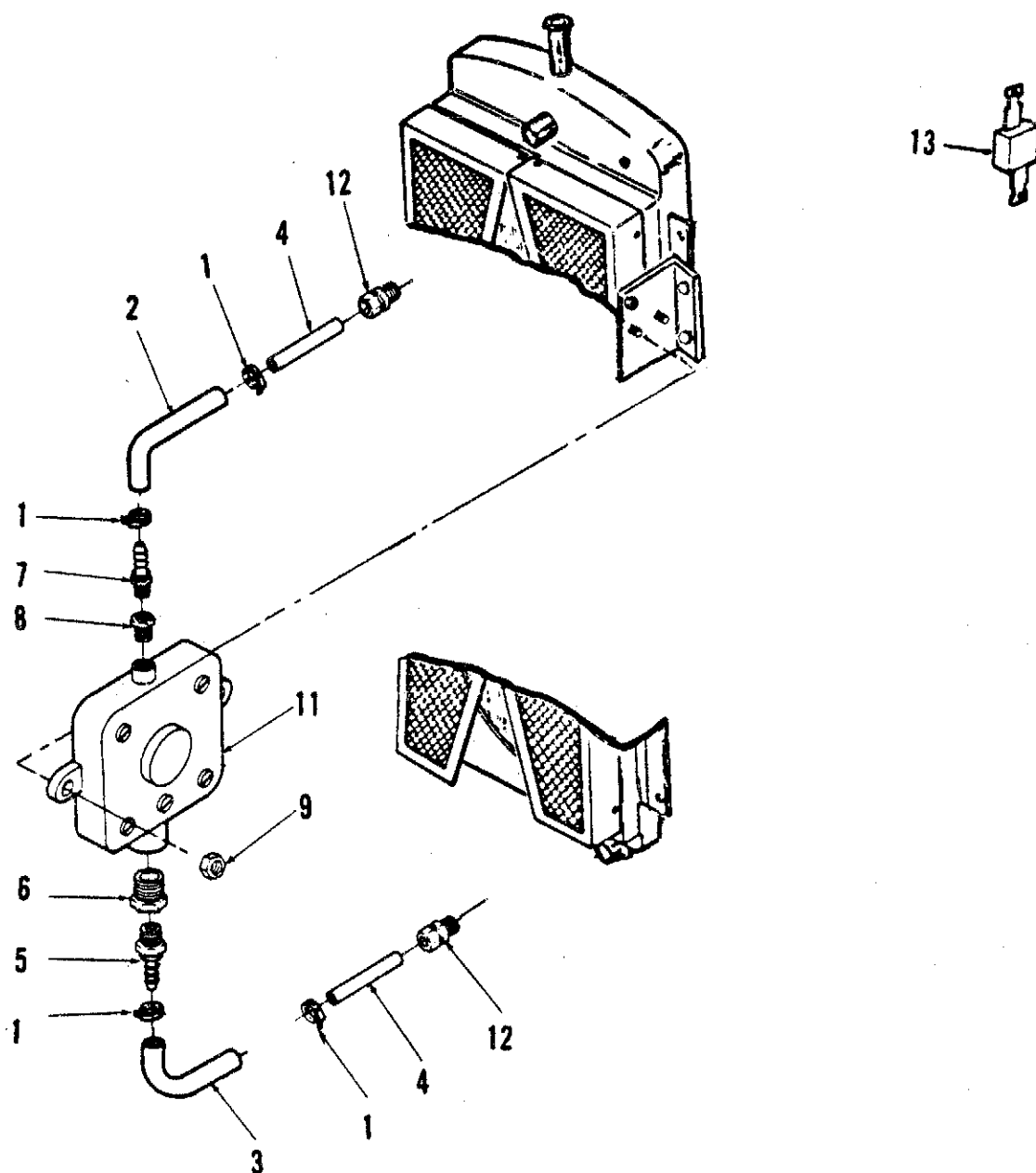
OPTIONAL OUTPUT BOX ASSEMBLY (HOUSED SETS)



M1230

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	821-0005	4	Screw, Self-locking - Hex Washer Head (#10-32 x 1/2)
2	301-3156	1	Panel, Access
3	815-0350	2	Screw, Tapping - Hex Head, Slotted (#10-32 x 3/8)
4	301-3195	1	Plate, Access - Button
5	821-0014	2	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
6	821-0010	2	Screw, Self-locking - Hex Washer Head (1/4-20 x 1/2")
7	301-3196	1	Bracket, Support - Current Transformer Assy
8	508-0203	1	Bushing, Nylon
9	301-3191	1	Box, Output

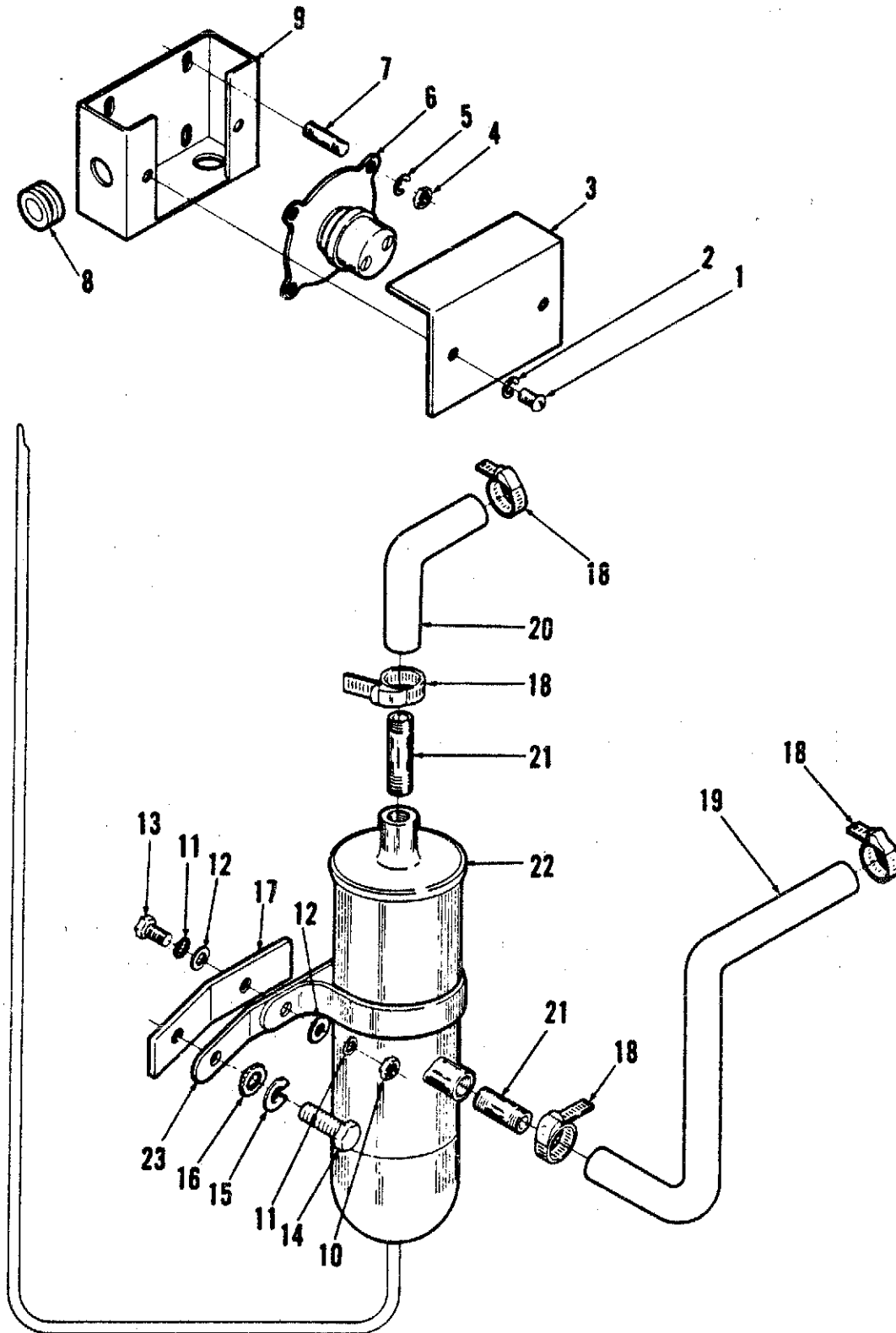
OPTIONAL LOW COOLANT LEVEL SWITCH



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	503-0685	4	Clamp, Hose
2	503-0707	1	Hose, Vinyl (1/4" ID x 12" Lg)
3	503-1199	1	Hose, Vinyl (1/4" ID x 24" Lg)
4	130-2053	2	Tube (1/4" OD x 2" Lg)
5	502-0389	1	Adapter - Hose to Pipe
6	505-0151	1	Bushing, Reducer - Brass (1/2" NPT x 1/8" NPT)
7	502-0389	1	Adapter - Hose to Pipe

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
8	505-0007	1	Bushing, Reducer - Brass (1/4" NPT x 1/8" NPT)
9	870-0212	2	Nut, Self-locking - Hex Washer Head (1/4-20)
11	193-0329	1	Switch - Coolant Level
12	502-0809	2	Adapter, Tube (Blind Hole Fitting) (5/8" OD x 1/4" Tube)
13	357-0030	2	Diode, Rectifier

OPTIONAL ENGINE COOLANT HEATER (VERTICAL TANK)

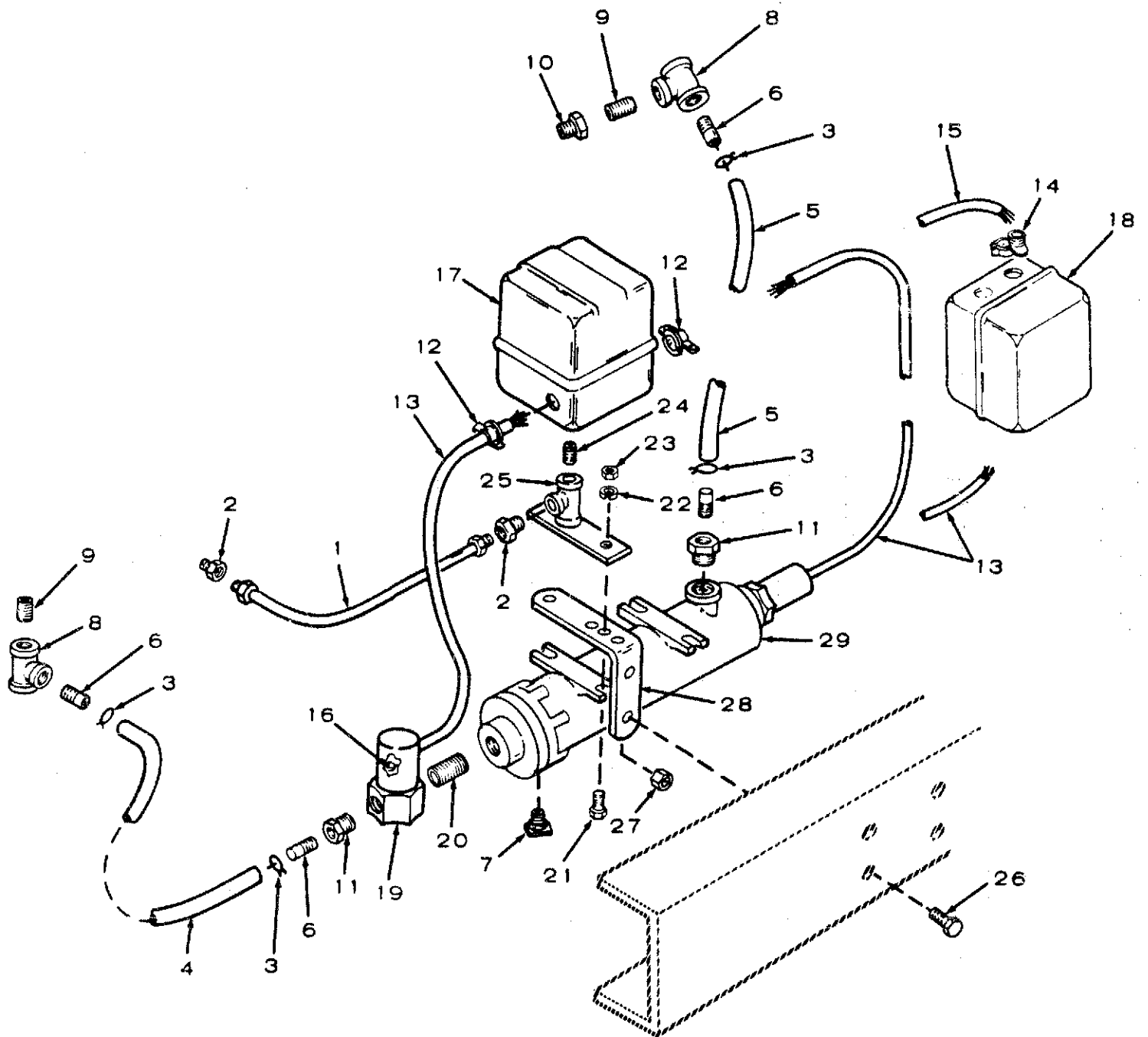


OPTIONAL ENGINE COOLANT HEATER (VERTICAL TANK)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
ENGINE COOLANT HEATERS			
		1	120 Volt, 1500 Watts
		1	120 Volt, 2000 Watts
		1	208/240 Volt, 1875-2000 Watts
1	812-0076	2	Screw, Machine - Round Head (#8-32 x 5/16")
2	850-0025	2	Washer, Lock - Spring (#8)
3	COVER, THERMOSTAT BOX		
	333-0013	1	Used on 120 Volt Applications
	333-0056	1	Used on 240 Volt Applications
4	870-0053	2	Nut, Hex (#10-32)
5	850-0030	2	Washer, Lock - Spring (#10)
6	SWITCH, THERMOSTATIC		
	309-0285	1	120/250 Volt, 40-25 Amp, SPST (100 Deg Close, 130 Deg Open)
	309-0256	1	120/250 Volt, 40-25 Amp, DPST (100 Deg Close, 130 Deg Open)
7	STUD		
	520-0446	2	#10-32 x 3/4"
	520-0672	2	#10-32 x 1"
8	508-0008	2	Grommet, Rubber
9	BOX, THERMOSTAT		
	333-0012	1	Used on 120 Volt Application
	333-0057	1	Used on 208/240 Volt Applications
10	862-0015	1	Nut, Hex (5/16-18)
11	856-0008	2	Washer, Lock - EIT (5/16")
12	526-0115	2	Washer, Flat (11/32" ID x 11/16" OD x 1/16" Thk)
13	800-0031	1	Screw, Cap - Hex Head (5/16-18 x 1- 1/2")
14	800-0091	1	Screw, Cap - Hex Head (1/2-13 x 1-1/4")
15	850-0060	1	Washer, Lock - Spring (1/2")
16	856-0013	1	Washer, Lock - EIT (1/2")
17	130-0755	1	Bracket, Mounting - Heater
18	503-0183	4	Clamp, Hose
19	503-0113	1	Hose, Rubber (5/8" ID x 61/64" OD x 16" Lg)
20	503-1000	1	Hose, Rubber (5/8" ID x 61/64" OD x 9" Lg)
21	505-0135	2	†Nipple, Pipe - Half 3/8" NPT x 1-1/2" Lg)
22	HEATER, ENGINE COOLANT (Includes Mounting Strap)		
	333-0052	1	1500 Watts, 120 Volt
	333-0053	1	2000 Watts, 120 Volt
	333-0073	1	2000 Watts, 208/240 Volt
23		1	Strap, Mounting - (Part of Heater)

† - Parts used with 2000 Watt Heaters only.

OPTIONAL ENGINE COOLANT HEATER



CS-1108

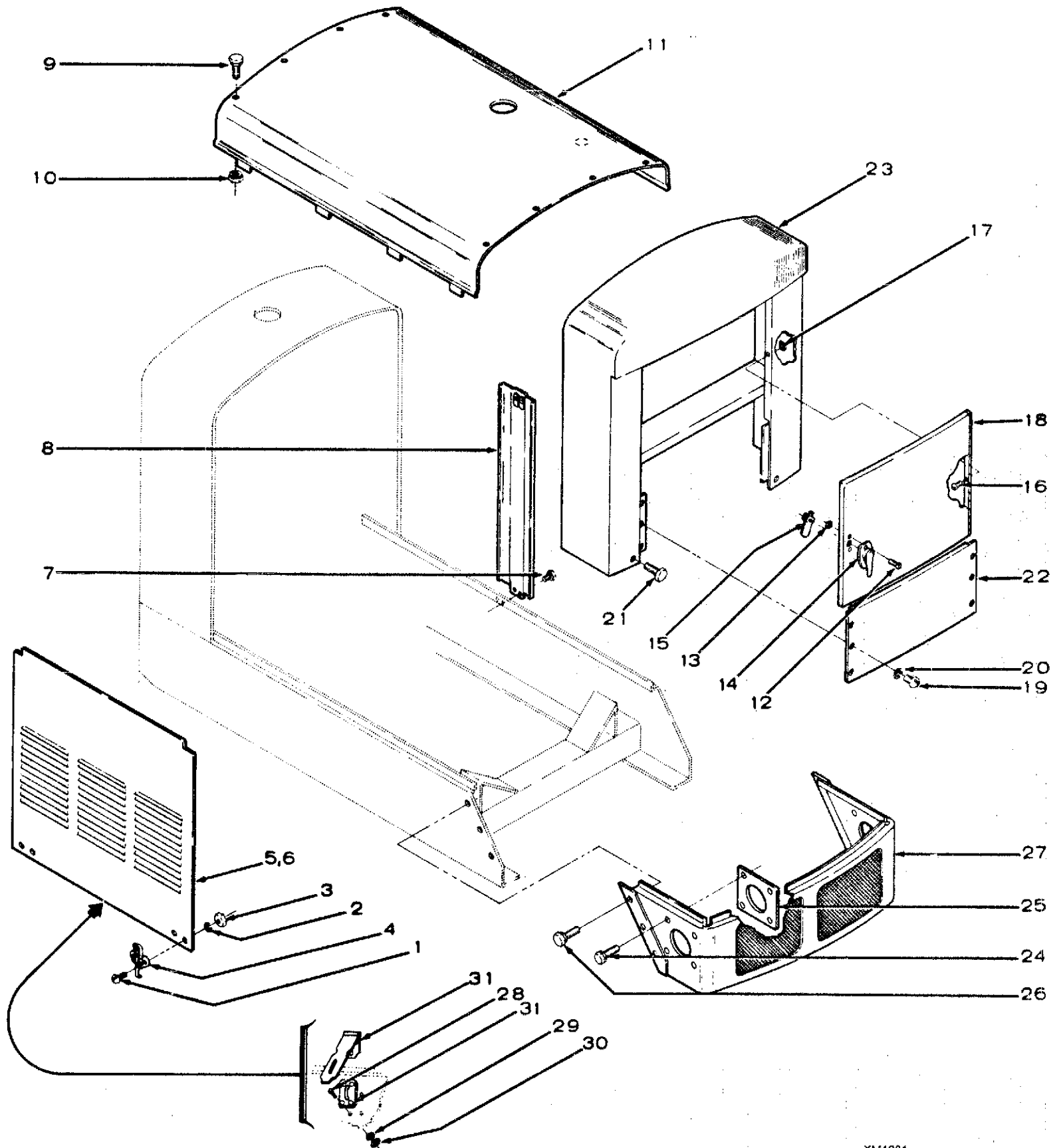
OPTIONAL ENGINE COOLANT HEATER

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
ENGINE COOLANT HEATER			
		1	115 Volt, 1 Phase
		1	480 Volt, 1 Phase
		1	240 Volt, 1 Phase
		1	208 Volt, 1 Phase
		1	380 Volt, 3 Phase
		1	208 Volt, 3 Phase
		1	480 Volt, 3 Phase
1	501-0227	1	Line, Fuel - Flexible
2	505-0007	2	Bushing, Reducer (1/4" NPT x 1/8" NPT)
3	503-0183	4	Clamp, Hose
4	503-0843	1	Hose, Rubber (5/8" ID x 61/64" OD x 40" Lg)
5	503-0833	1	Hose, Rubber (5/8" ID x 61/64" OD x 24" Lg)
6	505-0135	4	Nipple, Pipe - Half (3/8" NPT x 1-1/2" Lg)
7	504-0003	1	Cock, Drain (1/4" NPT)
8	505-0060	2	Tee, Pipe (3/8" NPT)
9	505-0101	2	Nipple Pipe - Close (3/8" NPT x 1")
10	505-0131	1	Bushing, Reducer (3/4" NPT x 3/8" NPT)
11	505-0455	1	Bushing, Reducer (1" NPT x 3/8" NPT)
12	331-0027	2	Clamp, Cable (3/8" OD Cable)
13	#		Cord, Electrical - 2 #14, Type So, 600 Volt, 60°
14	331-0027	4	Clamp, Cable (3/8" OD Cable) - Used with Contactor only
15	CABLE, ELECTRICAL		(Type So, 600 Volt)
	#		3 - #12 (Used on Single Phase Hookup)
	#		4 - #14 (Used on Three Phase Hookup)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
16	CONNECTORS		
	332-0149	8	Terminal, Lug (Used on White Leads)
	323-0957	2	Wire Nut (Used on Black Leads)
17	309-0307	1	Switch, Pressure - Oil
18	CONTACTOR (Select by Applicable Voltage)		
	307-1460	1	240 Volt, 30 Amp
	307-1164	1	480 Volt, 30 Amp
19	309-0304	1	Switch, Thermostatic
20	505-0004	1	Nipple, Pipe - Close (1" NPT x 1-1/2" Lg)
21	800-0007	4	Screw, Cap - Hex Head (1/4-20 x 1")
22	850-0040	4	Washer, Lock - Spring (1/4")
23	862-0001	4	Nut, Hex (1/4-20)
24	505-0099	1	Nipple, Pipe - Close (1/4" NPT x 7/8" Lg)
25	333-0142	1	Support with Tee - Pressure Switch Mounting
26	821-0016	4	Screw, Self-locking - Hex Washer Head (5/16-18 x 3/4")
27	870-0257	4	Nut, Self-locking - Hex Washer Head (5/16-18)
28	130-1192	2	Bracket, Angle - Heater Mounting
29	HEATER, ELECTRICAL - ENGINE COOLANT (Select As Applicable)		
	333-0158	1	2000 Watts, 115 Volt, 1 Phase
	333-0167	1	2000 Watts, 208 Volt, 1 Phase
	333-0148	1	2000 Watts, 208 Volt, 3 Phase
	333-0141	1	2000 Watts, 240 Volt, 1 Phase
	333-0176	1	2000 Watts, 380 Volt, 1 Phase
	333-0170	1	2000 Watts, 380 Volt, 3 Phase
	333-0147	1	2000 Watts, 480 Volt, 1 Phase
	333-0146	1	2000 Watts, 480 Volt, 3 Phase

Electrical Cable and Cord Shown For Reference Purpose Only.

OPTIONAL SET HOUSING

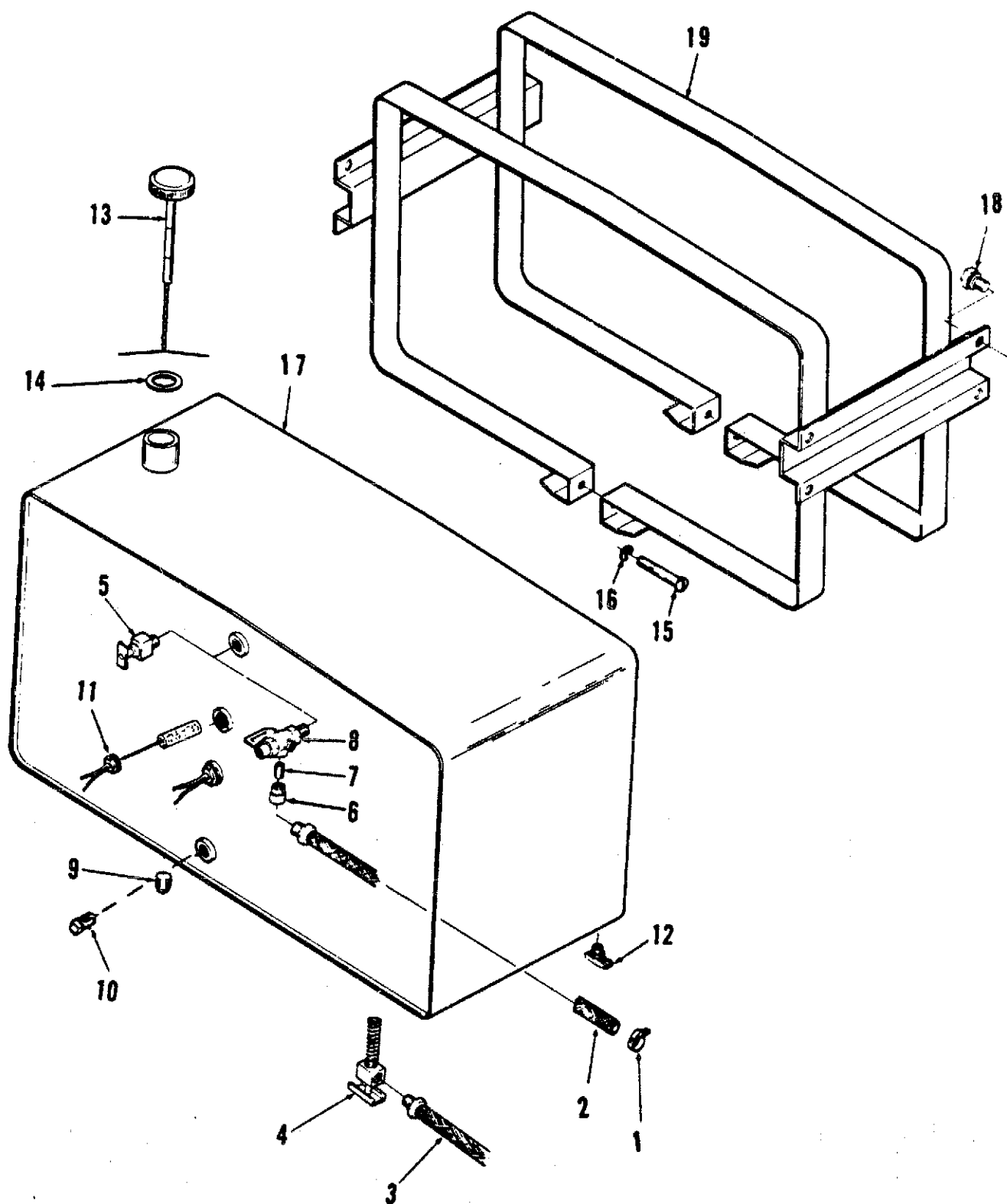


XM1231

OPTIONAL SET HOUSING

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	813-0098	16	Screw, Machine - Round Head (#10-32 x 3/8")	14	406-0157	1	Handle, Latch (With Keys)
2	850-0030	16	Washer, Lock - Spring (#10)	15	406-0089	1	Catch, Latch
3	870-0053	16	Nut, Hex (#10-32)	16	809-0059	3	Screw, Tapping - Pan Head (1/4 x 1/2")
4	406-0105	8	Clamp, Door (2 Required Each Door)	17	870-0106	3	Nut, Sheet Spring (1/4")
5	405-1804	2	Door, Access, Louvered - Engine Section (Door Clamps Not Included)	18	405-1777	1	Door, Access - Rear
6	405-1804	2	Door, Access, Louvered - Generator Section, (Door Clamps Not Included)	19	813-0098	6	Screw, Machine - Round Head (#10-32 x 3/8")
7	821-0014	8	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")	20	850-0030	6	Washer, Lock - Spring (#10)
8	405-1776	2	Support, Housing - Center	21	821-0014	8	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
9	821-0014	12	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")	22	405-2158	1	Panel, Access - Rear
10	870-0113	12	Nut, Clinch (5/16-18)	23	405-2159	1	Panel, Housing - Rear
11	405-2153	1	Panel, Housing - Top	24	821-0010	8	Screw, Self-locking - Hex Washer Head (1/4-20 x 1/2")
12	812-0149	2	Screw, Machine - Round Head (1/4-20 x 9/16")	25	403-0895	2	Plate, Cover
13	870-0232	2	Nut, Self-locking, Hex - With ET Lockwasher (1/4-20)	26	821-0029	6	Screw, Self-locking - Hex Washer Head (3/8-16 x 3/4")
				27	403-0894	1	Chassis - Rear
				28	814-0079	28	Screw, Machine - Flat Head (#8-32 x 1/2")
				29	850-0025	28	Washer, Lock - Spring (#8)
				30	860-0008	28	Nut, Hex (#8-32)
				31	406-0249	4	Hasp Set - Optional

OPTIONAL FUEL TANK-MOUNTED (HOUSED SETS)



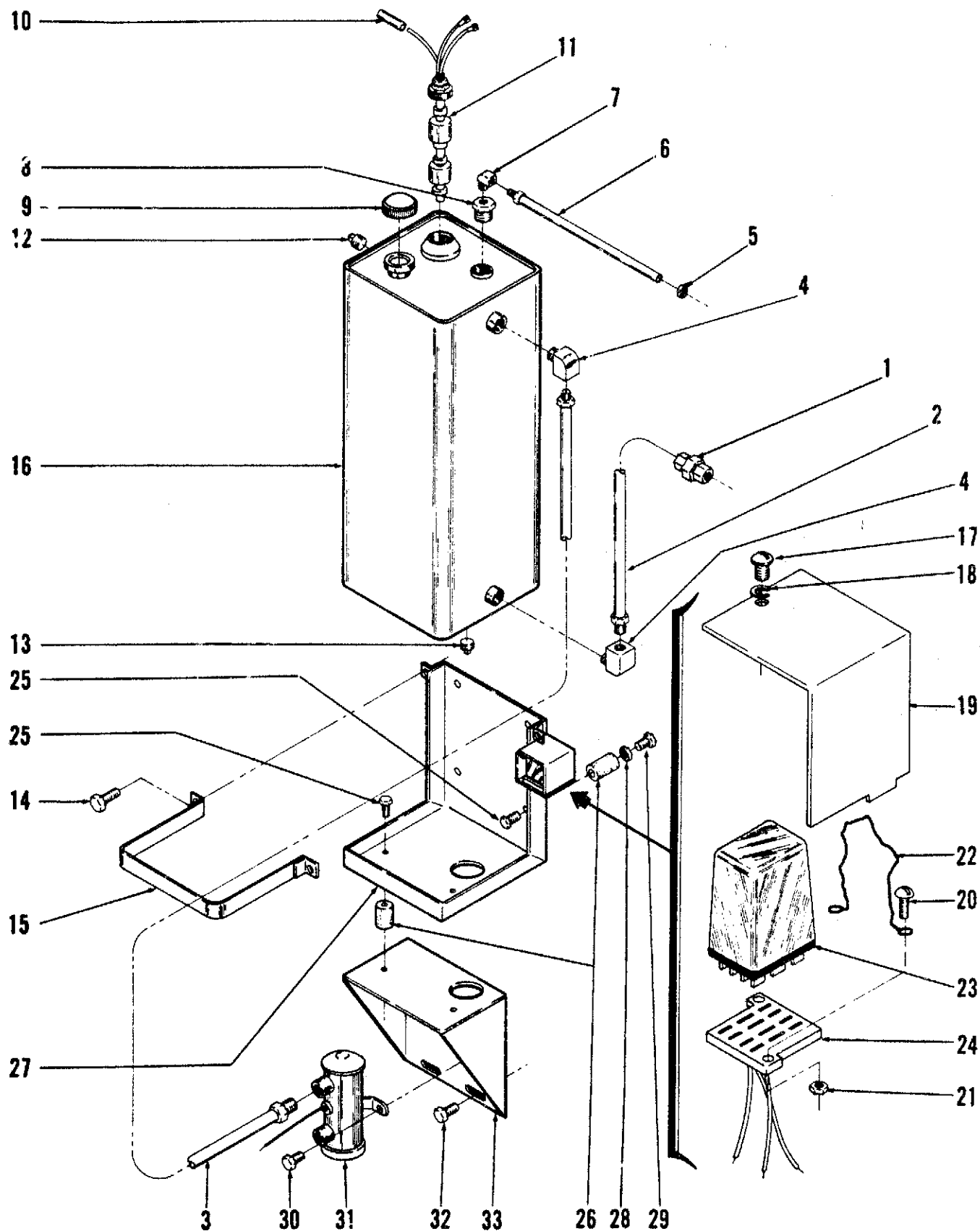
OPTIONAL FUEL TANK-MOUNTED (HOUSED SETS)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	503-0685	1	Clamp, Hose (1/2" OD Hose)
2	LINE, FUEL - FLEXIBLE (Select as Required)		
	501-0104	1	48" Lg. 1/4 SAE Male Swivel
	501-0205	1	72" Lg. 1/4 SAE Male Swivel
3	LINE, FUEL - FLEXIBLE (Select Length as Required) (1/8 NPT Male x 1/4 SAE Male Swivel with 7/16-24 Thd)		
	501-0004	1	12" Lg
	501-0007	1	24" Lg
	501-0009	1	36" Lg
	501-0027	1	48" Lg
	501-0016	1	52" Lg
	501-0094	1	60" Lg
	501-0017	1	64" Lg
	501-0247	1	69" Lg
4	504-0013	1	Valve, Shutoff - with Screen (1/8" NPT)
5	504-0007	1	Valve, Shutoff (1/8" NPT)
6	502-0017	1	Connector, Inverted Female
7	502-0046	1	Nipple, Pipe - Close, Brass (1/8" NPT x 3/4" Lg)
8	504-0004	2	Valve, Shutoff - 3 Way
9	505-0057	1	Plug, Pipe - Square Head (1/8" NPT)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
10	505-0130	2	Plug, Pipe - Square Head (3/4" NPT)
11	309-0326	2	Switch, Fuel Level
12	504-0005	1	Cock, Drain (1/8" NPT)
13	159-0512	1	Cap and Indicator, Fuel (Includes Gasket)
14	159-0751	1	Gasket, Fuel Cap
15	812-0158	2	Screw, Machine - Round Head (1/4-20 x 2")
16	850-0040	2	Washer, Lock - Spring (1/4")
17	TANK, FUEL - 20 GAL		
	159-0490	1	With Two Fuel Ports
	159-1025	1	With Three Fuel Ports
	159-1103	1	With Three Fuel Ports and Two Switch Ports
18	821-0010	8	Screw, Self-Locking - Hex Washer Head (1/4-20 x 1/2")
19	159-0489	1	Strap Assembly - Tank Mounting

NOTE: Tank 159-1025 may be substituted for tank 159-0490,
used a Pipe Plug in unused port.

OPTIONAL FUEL TANK RESERVOIR (HOUSED SETS)

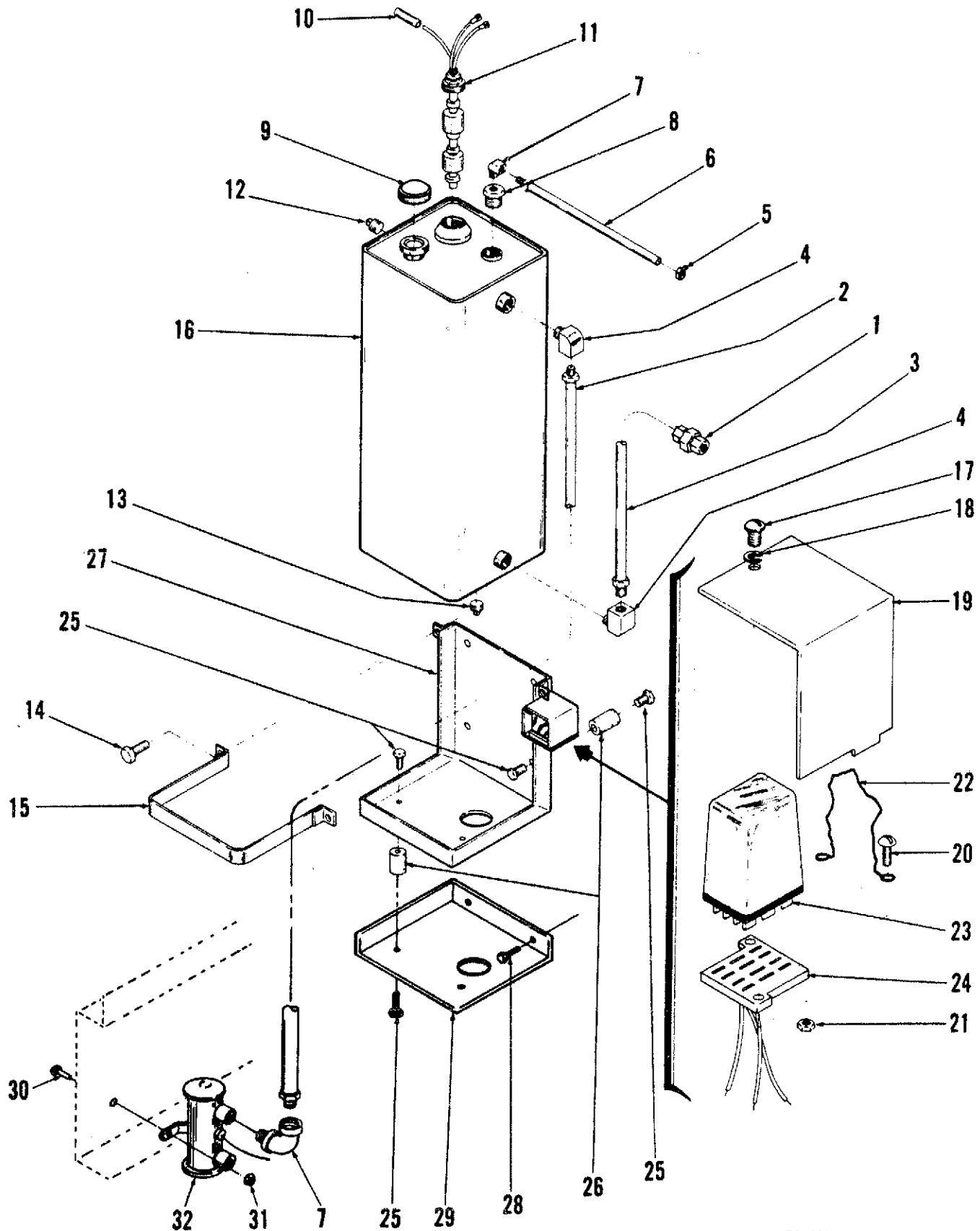


XFS1269

OPTIONAL FUEL TANK RESERVIOR (HOUSED SETS)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	FUEL TANK RESERVIOR			17	813-0098	1	Screw, Machine - Round Head (#10-32 x 3/8")
		1	For Housed Sets	18	850-0030	1	Washer, Lock - Spring (#10)
1	502-0051	1	Coupling, Pipe - Brass (1/4" NPT)	19	415-0326	1	Cover, Access - Relay
2	501-0008	1	Line, Fuel - Flexible	20	812-0061	2	Screw, Machine - Round Head (#6-32 x 3/8")
3	501-0015	1	Line, Fuel - Flexible	21	870-1183	2	Nut, Self-locking, Hex - with External Tooth Lock Washer (#6-32)
4	502-0041	2	Elbow, Pipe - Street, 90 DEG, Brass (1/4" NPT) - Inverted Male	22	307-1157	1	Spring, Hold Down - Relay
5	503-0685	1	Clamp, Hose	23	307-1058	1	Relay - 12 VDC
6	501-0226	1	Line, Fuel - Flexible	24	323-0897	1	Socket, Relay (Included Leads)
7	502-0020	1	Elbow, Pipe - Street, 90 DEG, Brass (1/8" NPT)	25	821-0014	6	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
8	502-0029	1	Bushing, Reducer - Hex (1/4" NPT x 1/8" NPT)	26	402-0070	4	Mount, Vibration
9	159-0007	1	Cap, Fuel Tank	27	415-0324	1	Bracket, Mounting - Fuel Tank
10	332-0556	4	Connector, Splice	28	870-0048	2	Nut, Self-locking, Hex Washer Head (5/16-18)
11	415-0335	1	Switch, Float - Liquid Level	29	821-0016	2	Screw, Self-locking - Hex Washer Head (5/16-18 x 3/4")
12	505-0054	1	Plug, Pipe - Square Head (1/4" NPT)	30	821-0018	2	Screw, Self-locking - Hex Washer Head (1/4-20 x 5/8")
13	505-0110	1	Plug, Pipe - Square Head (3/8" NPT)	31	149-1830	1	Pump, Fuel - Electric, 12 VDC
14	821-0013	2	Screw, Self-locking - Hex Washer Head (1/4-20 x 1")	32	821-0014	2	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
15	415-0323	1	Strap, Retaining - Tank	33	130-1005	1	Bracket, Mounting - Fuel Pump
16	415-0325	1	Tank, Fuel - Day				

OPTIONAL FUEL TANK RESERVOIR (UNHOUSED SETS)

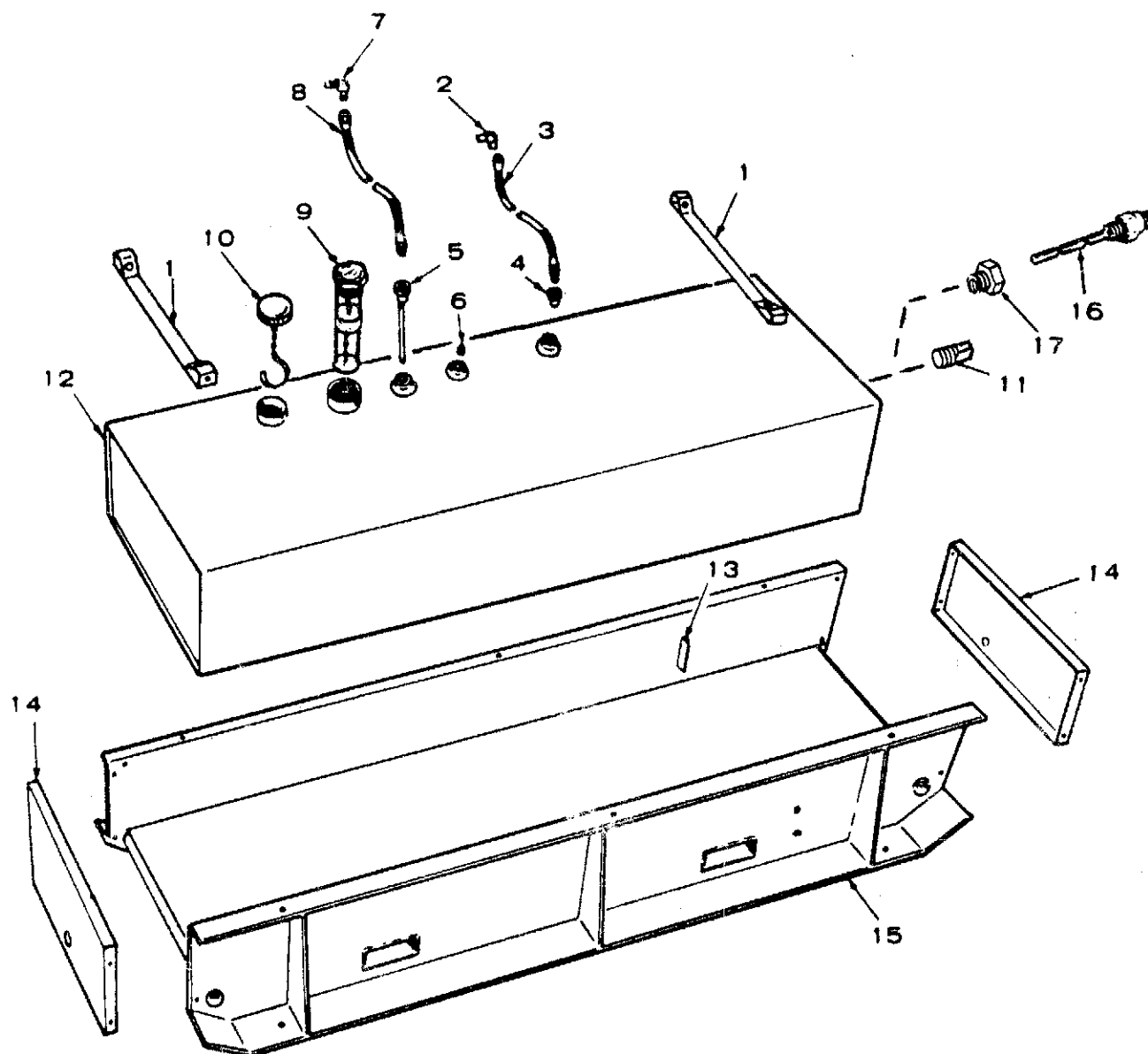


FS1270

FUEL TANK RESERVIOR (UNHOUSED SETS)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
FUEL TANK RESERVIOR				16	415-0325	1	Tank, Fuel - Day
1	502-0051	1	For Unhoused Sets	17	813-0098	1	Screw, Machine - Round Head (#10-32 x 3/8")
			Coupling, Pipe - Brass (1/4" NPT)	18	850-0030	1	Washer, Lock - Spring (#10)
2	501-0008	1	Line, Fuel - Flexible	19	415-0326	1	Cover, Access - Relay
3	501-0007	1	Line, Fuel - Flexible	20	812-0061	2	Screw, Machine - Round Head (#6-32 x 3/8")
4	502-0041	2	Elbow, Pipe - Street, 90 DEG, Brass (1/4" NPT) - Inverted Male	21	870-1183	2	Nut, Self-locking, Hex - with External Tooth Lock Washer (#6-32)
5	503-0685	1	Clamp, Hose	22	307-1157	1	Spring, Hold Down - Relay
6	501-0226	1	Line, Fuel - Flexible	23	307-1058	1	Relay - 12 VDC
7	502-0020	2	Elbow, Pipe - Street, 90 DEG, Brass (1/8" NPT)	24	323-0897	1	Socket, Relay (Includes Leads)
8	502-0029	1	Bushing, Reducer - Hex (1/4" NPT x 1/8" NPT)	25	821-0014	8	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
9	159-0007	1	Cap, Fuel Tank	26	402-0070	4	Mound, Vibration
10	332-0556	4	Connector, Splice	27	415-0324	1	Bracket, Mounting - Fuel Tank
11	415-0335	1	Switch, Float - Liquid Level	28	821-0014	2	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
12	505-0054	1	Plug, Pipe - Square Head (1/4" NPT)	29	403-1118	1	Plate, Support - Fuel Tank
13	505-0110	1	Plug, Pipe - Square Head (3/8" NPT)	30	821-0018	2	Screw, Self-locking - Hex Washer Head (1/4-20 x 5/8")
14	821-0013	2	Screw, Self-locking - Hex Washer Head (1/4-20 x 1")	31	870-0212	2	Nut, Self-locking - Hex Washer Head (1/4-20)
15	415-0323	1	Strap, Retaining - Tank	32	149-1830	1	Pump, Fuel - Electric, 12 VDC

OPTIONAL FUEL TANK AND SUB BASE



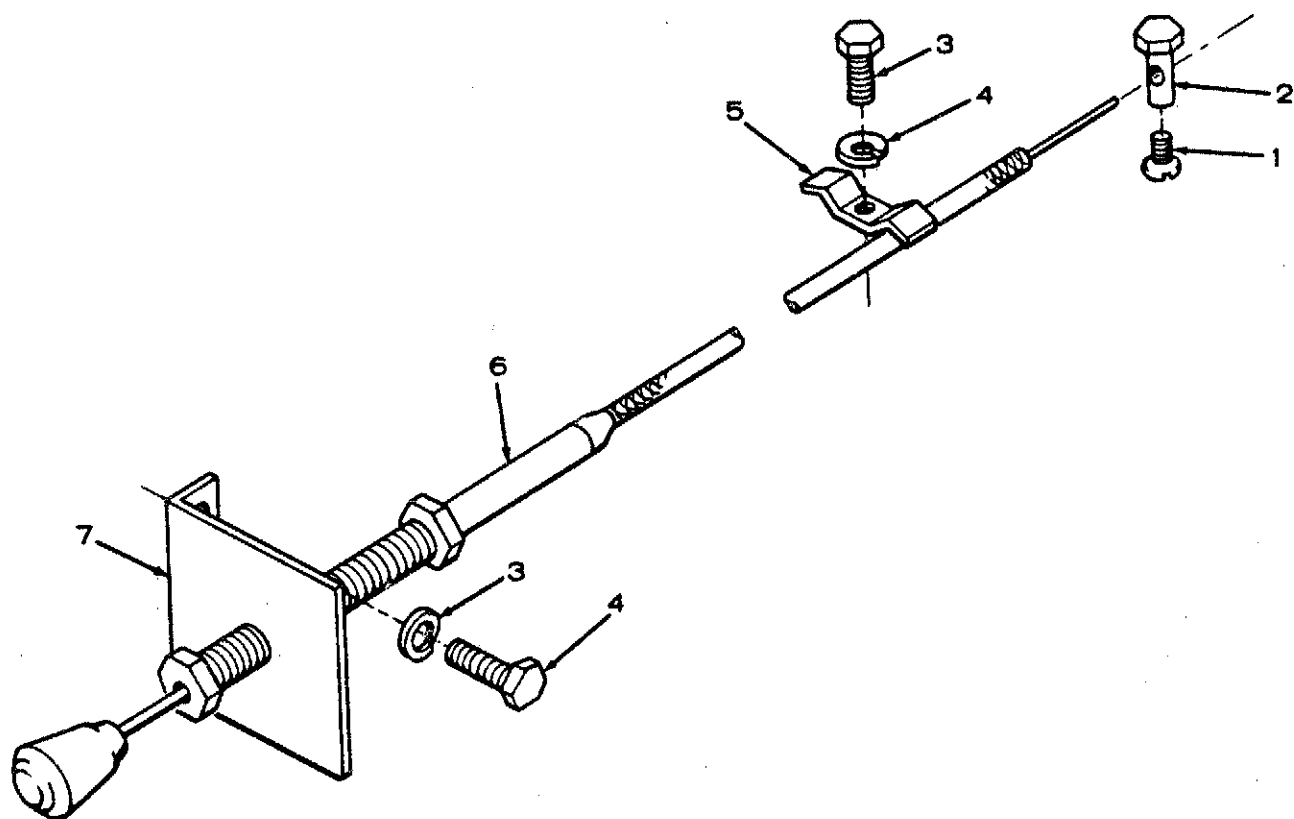
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	159-1007	2	Strap, Hold-down - Fuel Tank
2	502-0005	1	Elbow
3	501-0196	1	Line, Fuel - Flexible
4	505-0018	1	Bushing, Reducer
5	415-0318	1	Pipe, Suction
6	505-0334	1	Plug, Pipe
7	502-0002	1	Elbow
8	501-0103	1	Line, Fuel - Flexible
9	193-0217	1	Gauge, Liquid Level
10	159-0020	1	Cap, Tank
11	505-0247	1	Plug, Pipe
12	159-1006	1	Tank, Fuel - 58 Gallon
13	159-1005	2	Stop, Fuel Tank
14	403-1009	2	Plate, End - Sub-Base
15	403-1007	1	Base, Sub - Fuel Tank

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
16	130-1424	1	Sensor, Fuel Level
17	505-0316	1	Bushing, Reducer - Special

ATTACHING HARDWARE - NOT ILLUSTRATED (Select as Applicable)

800-0050	12	Screw, Cap - Hex Head (3/8-16 x 1")
800-0051	4	Screw, Cap - Hex Head (3/8-16 x 1-1/4")
800-0091	6	Screw, Cap - Hex Head (1/2-13 x 1-1/4")
850-0050	16	Washer, Lock - Spring (3/8")
850-0060	6	Washer, Lock - Spring (1/2")
526-0219	5	Washer, Flat (17/32" ID 1" OD x 1/8" Thk)
862-0003	16	Nut, Hex (3/8-16)
862-0016	6	Nut, Hex (1/2-13)

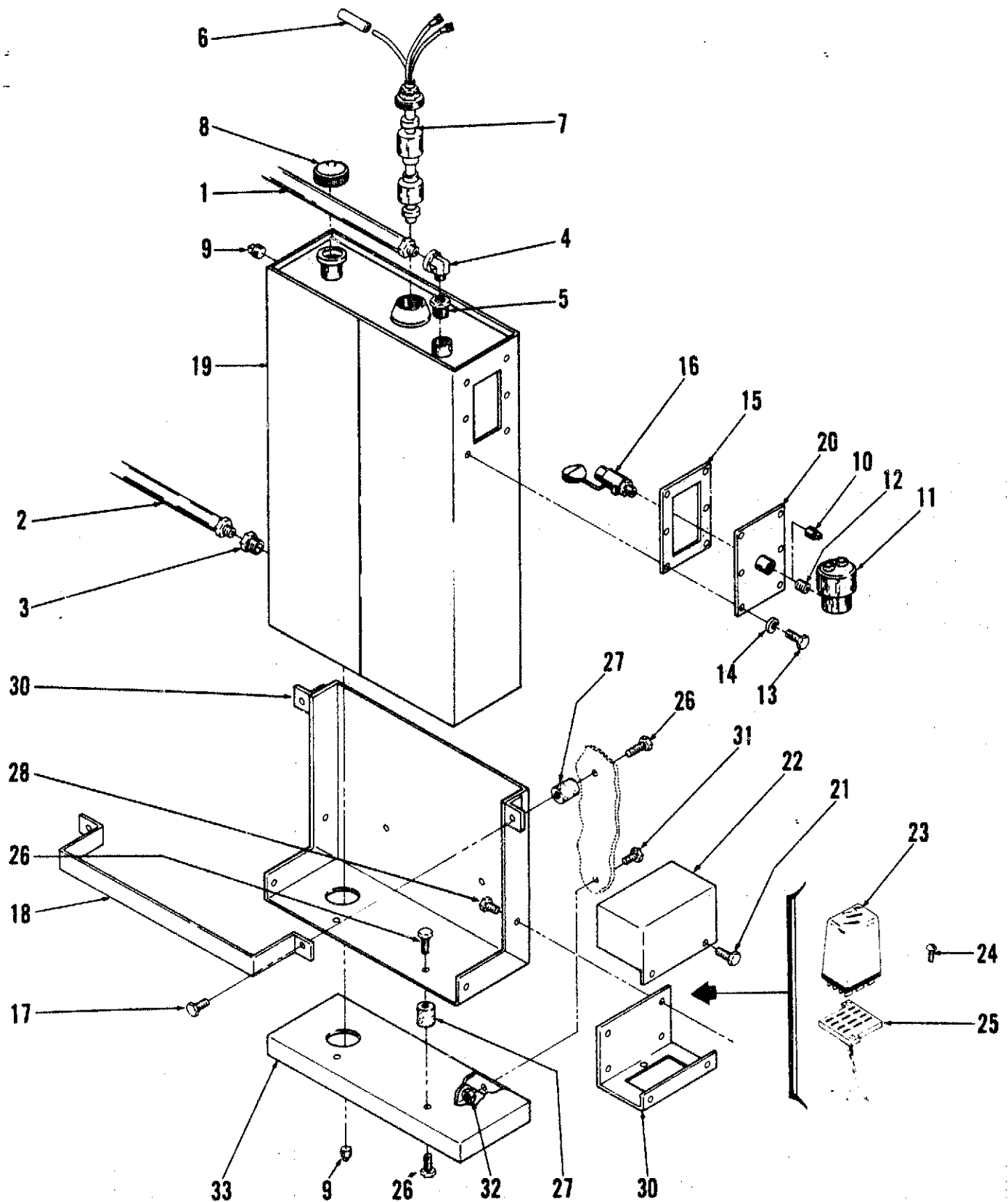
OPTIONAL VERNIER THROTTLE



M-1179

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	812-0075	1	Screw, Machine - Round Head (#8-32 x 1/4")
2	152-0158	1	Swivel
3	800-0005	3	Screw, Cap - Hex Head (1/4-20 x 3/4")
4	850-0040	3	Washer, Lock - Spring (1/4")
5	152-0036	1	Clamp, Holddown - Cable
6	152-0120	1	Throttle Control - Vernier
7	151-0230	1	Bracket, Mounting - Throttle Control

OPTIONAL FUEL TANK RESERVOIR (OVERHEAD/UNDERGROUND APPLICATIONS)

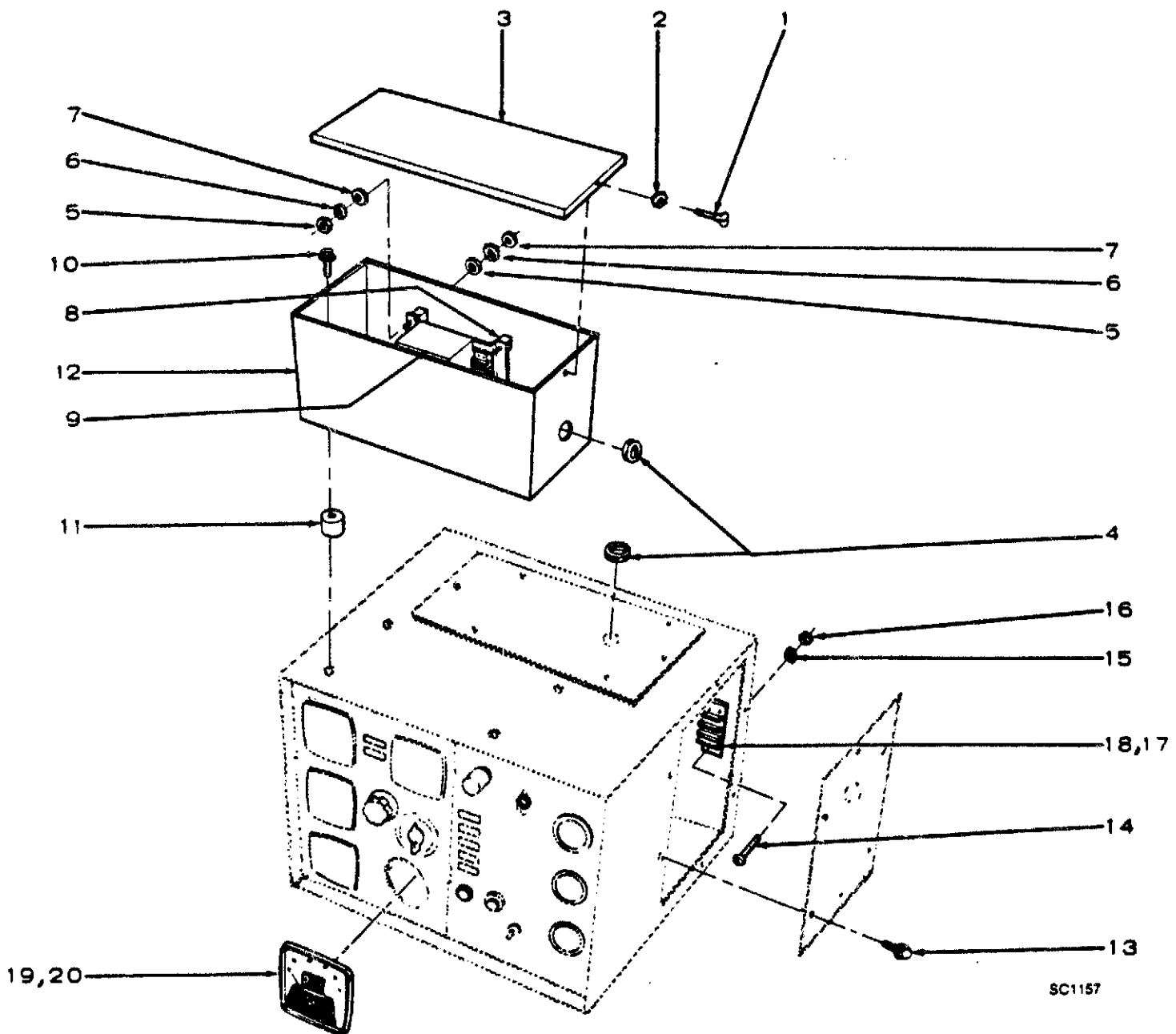


XFS1271

OPTIONAL FUEL TANK RESERVIOR (OVERHEAD/UNDERGROUND APPLICATIONS)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	FUEL TANK RESERVIOR			17	821-0013	2	Screw, Self-locking - Hex Washer Head (1/4-20 x 1")
		1	£ Overhead Tank Application	18	415-0451	1	Strap, Retaining - Fuel Tank
		1	† Underground Tank Application	19	415-0468	1	Tank, Fuel - Day (Includes Access Cover Plate)
1	501-0226	1	Line, Fuel - Flexible	20	415-0516	1	Plate, Cover - Access
2	501-0321	1	Line, Fuel - Flexible	21	821-0004	2	Screw, Self-locking - Hex Washer Head (#10-32 x 5/16")
3	502-0029	1	Bushing, Reducer - Hex (1/4" NPT x 1/8" NPT)	22	415-0464	1	Cover, Access - Relay
4	502-0020	1	Elbow, Pipe - Street, 90 DEG (1/8" NPT)	23	307-1058	1	Relay - 12 VDC
5	502-0029	1	Bushing, Reducer - Hex (1/4" NPT x 1/8" NPT)	24	812-0079	2	Screw, Machine - Round Head (#8-32 x 1/2")
6	332-0556	4	Connector, Splice	25	323-0804	1	Socket, Relay
7	415-0466	1	Switch, Float - Liquid Level	26	821-0014	8	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
8	159-0007	1	Cap - Fuel Tank	27	402-0078	4	Mount, Vibration
9	502-0155	2	Plug, Pipe - Square Head, Brass (3/8" NPT)	28	821-0008	2	Screw, Self-locking - Hex Washer Head (1/4-20 x 5/16")
10	505-0057	1	† Plug, Pipe - Square Head (1/8" NPT)	29	415-0463	1	Box, Control - Relay
11	307-0585	1	£ Solenoid - 12 VDC	30	415-0471	1	Bracket, Mounting - Fuel Tank
12	505-0098	1	£ Nipple, Pipe - Close (1/8" NPT x 3/4")	31	821-0014	6	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
13	800-0002	6	Screw, Cap - Hex Head (1/4-20 x 3/8")	32	870-0045	3	Nut, Hex (5/16-18)
14	526-0063	6	Washer, Flat - Copper (17/64" ID x 7/16" OD x 1/32" Thk)	33	415-0449	1	Bracket, Support - Fuel Tank
15	415-0467	1	Gasket - Access Plate	† - Parts used only in Underground Tank Application.			
16	309-0401	1	£ Valve, Float	£ - Parts used only in Overhead Tank Application.			

OPTIONAL WATTMETER



SC11157

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	815-0026	2	Screw, Machine - Truss Head (#10-32 x 3/8")
2	853-0008	2	Washer, Lock - External Tooth (#10)
3	301-3476	1	Cover - Transducer Box
4	508-0001	2	Grommet, Rubber (1-1/8" OD)
5	860-0008	8	Nut, Hex (#8-32)
6	853-0005	8	Washer, Lock - External Tooth (#8)
7	526-0003	8	Washer, Flat (11/64" ID x 3/8" OD x 1/32" Thk)
8	402-0354	4	Mount, Vibration
9	TRANSDUCER (Select as Required)		
	302-1082	1	60 Hertz
	302-1083	1	50 Hertz
10	821-0014	8	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
11	402-0070	4	Mount, Vibration
12	301-3477	1	Box, Transducer
13	815-0350	6	Screw, Tapping - Hex Washer Head (#10-32 x 3/8")
14	812-0083	4	Screw, Machine - Round Head (#6-32 x 1/2")

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
15	853-0003	4	Washer, Lock - External Tooth (#6)
16	860-0006	4	Nut, Hex (#6-32)
17	332-0609	1	Terminal, Strip
18	332-0610	1	Marker, Strip
19	302-1102	1	Wattmeter (Less Replaceable Dial)
20	DIAL, WATTMETER (Select as Required)		
	302-1103	1	Scale 0-35 kW
	302-1104	1	Scale 0-50 kW
	302-1105	1	Scale 0-70 kW
	302-1106	1	Scale 0-90 kW
	302-1107	1	Scale 0-115 kW
	302-1108	1	Scale 0-160 kW
	302-1109	1	Scale 0-180 kW
	302-1110	1	Scale 0-200 kW
	302-1115	1	Scale 0-250 kW
	302-1116	1	Scale 0-300 kW
	302-1117	1	Scale 0-350 kW
	302-1118	1	Scale 0-400 kW
	302-1119	1	Scale 0-450 kW
	302-1120	1	Scale 0-550 kW
	302-1121	1	Scale 0-650 kW
	302-1122	1	Scale 0-750 kW